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ABSTRACT

This curriculum guide prepared in Louisiana suggests a model by which educational institutions may design and implement an articulated tech prep program. The following sources of information for the model are described: literature review; interviews with tech prep specialists and conference participants; visits to two exemplary programs; and interviews with personnel at 7 four-year institutions, 5 two-year institutions, and 27 technical institutes and secondary schools. The model provides objectives, current model descriptions, activities, implementation strategies, current instructional content, sources, evaluation models, and referred examples. Ten appendixes provide information on outstanding tech prep programs and samples of their forms and agreements, and a bibliography listing 16 books, 2 government publications, 28 journal and periodical articles, and 7 miscellaneous references. (KC)

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Vocational Education Curriculum Development

TECH-PREP

ADMINISTRATIVE GUIDELINES MODEL

Bulletin 1899

The University of Southwestern Louisiana

July, 1991

Louisiana Department of Education

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JOSEPH H. PONS, III

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July, 1991

FOREWORD

In every society, education is the means to an end: citizens must acquire a basic knowledge that will enable them to survive. In a democratic society, education becomes the means by which the individuals have the opportunity to develop their personalities, their talents, their dreams.

Developing competent citizens who can be involved effectively in the affairs of this state and our nation is critically important to Louisiana's educators as we approach the 21st century. The young people in Louisiana's schools today must be fully prepared to accept tomorrow's leadership roles with the knowledge, skills, and values necessary to sustain a democratic society against the many complex problems that will face them, this nation, and the world. They must be able to acquire, analyze, and evaluate vast amounts of information, synthesize it into knowledge, and refine it into the wisdom needed by competent citizens. Through the educational processes, they must be guided in the developing of creative and critical thinking processes to the extent they are capable of standing confidently on their own feet, of making clear and effective judgements, and of transferring acquired knowledge and skills to new tasks and skills demanded by everchanging society.

With the publication of this curriculum guide, the Tech-Prep Administrative Guidelines Model, the Louisiana Department of Education suggests a model by which educational institutions may design and implement an articulated Tech-Prep program. This model provides objectives, current model descriptions, activities, implementation strategies, current instructional content, sources, evaluation models, and referred examples.

We believe that this model will make a major contribution to the improvement of vocational education instruction. Its purpose is to encourage students at the secondary level to prepare for work through continued education leading toward a two-year certificate or associate degree.

Wilmer S. Cody
State Superintendent of Education

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Also, a special commendation goes to the members of the advisory counsel whose valued input served to keep the project on track.

F. Travis Lavigne
Assistant Superintendent
VOCATIONAL EDUCATION

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Tech-Prep

Administrative Guidelines Model

The University of Southwestern

Louisiana

July, 1991

Background Material and Introduction

Scope.

This research project was funded by the Carl D. Perkins Vocational Education Act of 1984 to develop a guide for articulation agreements in Louisiana. Particular emphasis focuses on articulation as it applies to Tech-Prep programs. Both secondary and post-secondary institutions were included in this study. The post-secondary scope included technical institutes and state funded two and four-year institutions. Only four-year institutions that offer terminal two-year associate degrees were targeted for interview.

Definitions.

Language and technical know-how has always been part of our civilized and cultural patrimony. To part from this American tradition would deeply inflict serious harm on the advancement and evaluation of our society. For the sake of clarity and to establish an understanding of our high technology society these definitions are used for this study/report.

Applied Academics: Hull and Parnell in the book TPAD best give a description of this term by stating: "the presentation of subject matter in a way that integrates a particular academic discipline (such as mathematics, science, or English) with personal work-force applications (hands-on laboratories dealing with practical equipment and devices)."

Articulation: The movement of students from one level of the educational system to another thus avoiding duplication of courses or expenses. The common or popular term today for articulation is 2 + 2.

Associate Degree: A two-year college degree granted by most community colleges and some four year institutions. A minimum of 66 hours of earned credit is usually required.

Associate of Arts Degree (AA): An Associate Degree in Arts primarily designed for students seeking the option to transfer credits to a four-year institution to obtain a bachelor of arts degree. This degree is awarded in the arts, humanities, and social science areas.

Associate of Applied Science Degree (AAS): An Associate Degree designed for students who complete approved course work in an applied science career program. The degree is awarded in vocational and technical areas.

Associate of Business Studies (ABS): This degree is awarded in business and secretarial studies.

Associate of General Studies (AGS): This degree is awarded upon completion of a highly flexible program designed by the student in consultation with an advisor. Depending upon the courses chosen, the degree may be either college-parallel or terminal.

Associate of Science Degree (AS): An Associate Degree in Science, primarily designed for students seeking the option to transfer credits to a four-year institution to obtain a bachelor of science degree. This degree is awarded in science, allied health, and technical areas.

Bachelor's (Baccalaureate) Degree: A four-year college degree granted by a college or university.

Bachelor of Arts Degree (BA): A four-year college degree in traditional liberal arts programs.

Bachelor of Science Degree (BS): A four year college bachelor's degree requiring credits in science or social science and proficiency in mathematics.

Banked Credit: This term applies to school students who have successfully completed an articulated course(s) through the post-secondary institution. The credit for the course(s) will be "banked" or held at the post-secondary institution until a student enrolls at that post-secondary institution as a full-time student (usually registered for 12 semester hours or more) at which time, the "banked" or held credits are transcribed on the student's official post-secondary institution transcript. Usually "banked" credit will be valid up to, but not beyond, five years after the student graduates from high school.

Capstone: A model articulation program that allows students with certain associate degrees and applied associate degrees, to apply these credits toward a bachelor's degree. Acceptance of approximately 60 semester hours is granted with a minimum of 60 additional semester hours required to complete degree requirements at the four-year institution. Other admission requirements must also be met.

CLEP: College Level Examination Program. A part of the College Entrance Examinations Board's approved program of advanced placement.

College-Prep: High school courses designated to meet entrance requirements of four-year colleges and universities.

Community College: A college system which is responsible for the delivery of post-secondary education and vocational training in specified geographic areas of the state.

Co-Op (Cooperative Education): Education programs where students, through cooperative arrangements between the school and employer, receive instruction from school and the employer in any occupational field.

C.O.R.D.: The Center for Occupational Research and Development Waco, Texas.

Dual/Concurrent Enrollment: A systematic approach for the enrollment of advanced high school students in college level courses while still attending high school.

Duplication: The offering of a course of instruction under a cooperative program model in local high schools, technical institutes, college and universities which have identical or very similar curricula.

Internship: A person serving in an apprenticeship role, as an assistant to a specialist or journeyman trainer.

N.A.I.T.: The National Association of Industrial Technology, Ann Arbor, MI.

OJT (On-the Job Training): A program that teaches skills and knowledges by an employer or his/her subordinate or training officer while a worker is employed in an occupation. Generally, these skills/knowledges are generally not suitable for educational institutions.

PACE: Partnership for Academic and Career Education. Pendleton, South Carolina.

SACS: Southern Association of Colleges and Schools. The recognized accrediting body in the 11 U.S. southern states.

SACS-COC: Southern Association of Colleges and Schools-Commission on Colleges. The division of SACS that accredit post-secondary degree-granting institutions that award degrees in any or all of the following levels: associate, bachelor's, master's and doctor's.

SACS-COEI: The Southern Association of Colleges and Schools Commission on Occupational Educational Institutions. The part of SACS that accredits Technical Institutes in Louisiana.

Tech-Prep: A new system of education that is designed to prepare students for careers in technologies. The Tech-Prep program offers students opportunities to take specially-designed or enhanced courses in mathematics, English, and science. These courses are supported by appropriate vocational, occupational, or technological courses to prepare for two year post-secondary programs. The two-year associate degree is the focus and leads to careers in technology, industry, business, allied health, and public service fields.

Two plus Two (2 + 2): Articulation is a process to link two or more educational systems in a vocational education area to help students make a smooth transition from one level to another. Included in this plan are policies, practices, and procedures whereby education becomes one unbroken flow or bridge between the student and the educational goals for himself/herself. This generally means two years of Tech-Prep at high school and two years in post-secondary education.

Two plus Two (2 + 2) Advanced Placement: When a Tech-Prep high school student successfully completes a specific course(s) that have been articulated with another institution while at his/her high school, and has successfully passed a competency test, i.e., demonstrates and/or proves competencies in the subject(s) at the other institution, the student is eligible for Advanced Placement into a certain course(s) at the other institution.

Articulation Models

There are two widely accepted articulation models, the capstone and the course-by-course. The capstone model eliminates many of the barriers at four-year institutions for students with an earned Associate of Science or an Applied Associate of Science degree desiring a baccalaureate degree. A capstone-model-program student spends little more than two additional years (60 semester hours) to earn a baccalaureate degree. General education requirements or a general education core must be satisfied at the four-year institution. Proper planning and coordination between technical institutes, two-year institutions, and the four-year institutions are paramount. Most AAA, AAS and non-transfer AA and AS curricula include less than thirty semester hours that satisfy the four-year core. Generally, core requirements must be satisfied in mathematics, English, science, humanities, social science, and speech to meet baccalaureate degree requirements. For a successful capstone articulation program to exist, students must exhibit significant progress toward the four-year core requirement at the two-year institution prior to transfer to the four-year institution. Course equivalencies, faculty credentials, and level of instruction are areas for agreement to make this articulation model work. An identifying hallmark of this model is that all courses of the two-year associate degree not only transfer but also apply toward the four-year degree program. The articulated-transfer student is accepted by the four-year institution, unchallenged, with a junior standing in both hours and in progress toward a specific degree.

The course-by-course articulation model is the more common model. In this model, course descriptions, syllabi, textbook usage, and depth of instruction are compared by the articulating institution's faculty. Once an institution agrees to allow credit for another institution's course(s), then course equivalency is established. For instance, if a two-year institution's Electricity 101/ Principles of Electricity is given equivalency to a four-year institution's Electronics 1001/ Fundamentals of Electronics, credit received for Electricity 101 at the two-year institution is applied toward graduation at the four-year institution. This is true provided the Electronics 1001 course is an appropriate course for graduation at the four-year institution. On the surface, the course-by-course model may not seem very different from the capstone model. But there is a significant difference. The difference lies in that the four-year institution will only apply credit for courses if the transfer course(s) corresponds exactly to the prescribed listed four-year course(s). This may not present a great problem in the area of English or psychology. However, in the case of technical courses, discretionary powers at the four-year institution may significantly reduce credit transfer. If all credits associated with the associate degree were transferred, as in the case of the capstone model, these discretionary credit reductions would no longer apply.

Research Methodology and Techniques

Literature.

Related literature was gathered by using *The Readers Guide to Periodical Literature*, computer assisted information searches using *Infotrac*, and CD-ROM *ERIC* databases. Twenty-one direct and associated reference publications specifically matched. Search words used were "articulation", "credit transfer", and "non-traditional credit." One hundred-eighty eight other associated references were identified, read for appropriateness, and cataloged on computer disk for future reference.

The general thrust of the literature positions Tech-Prep as pivotal in America's quest to regain its competitiveness in global markets. A College-Prep program is certainly the answer for many students and our high schools must help these students prepare for college. But what about the "Forgotten Majority", who may never earn a degree? Whitman in *The Forgotten Half* says "Half of all young American workers...do not attend college. And in the upcoming decade, the economy will depend as much on this diverse group of less skilled workers as it will on the nation's software programmers and rocket scientists." He continues "Despite the obvious economic consequences of ignoring half the work force, businessmen and educators persistently pay scant attention to non baccalaureate America."

Dr. Dale Parnell in his book, The Neglected Majority, quotes John Naisbitt, author of the book *Megatrends*, in describing the need for change in education: "We are living in the time of the parenthesis, the time between eras," says Naisbitt. "It is a time of ambiguity, of change, and questioning, a time electric with possibilities when a single model for achievement will always be limiting, a time when," Naisbitt suggests, "those able to anticipate the new era will be a quantum leap ahead of those who hold on to the past."

Parnell continues by describing the type of workers which will be needed to fill the needs of a changing society. He states, "obviously what is needed is a new standard bearer, a worker who has developed a cluster of skills that reflects many new trends in occupations, a worker who is less narrowly focused and whose responsibilities span several work areas." These students deserve a curriculum which is applicable to their talents and future. What can higher education offer them? Is the educational crisis of today being created by continuing to offer only one curriculum-College-Prep? Dan Hull and Dale Parnell offer this answer: "In the medical world, any physician recommending the same medicine or pill for all illnesses would be sued for malpractice." And yet former Secretary of Education William Bennett's 1987 recommendation of one high-school curriculum for all students was the educational equivalent of such a practice. His plan demonstrated an alarming lack of knowledge about the diversity of the public-school and community-college populations and the differences in how people learn. To compound the problem, Bennett indicated that those who disagree with his "one curriculum fits all" philosophy are against high standards and high student expectations!

The question that needs to be answered is do all students need the same school plan? Do they deserve to all have the same curriculum and to be taught in the same methods that generally insure failure? Why do we continue using passive methods promoted by college teachers when we know of many more effective methods of teaching. William Glasser in his book *Schools*

Without Failure discusses the need for involvement and relevance in American education. "Schools are experimenting with new teaching methods that integrate academics with hands-on learning...and they are forming closer ties to businesses and community colleges so that students can easily make the transition to work or college." John Naisbitt in his book *Megatrends* uses the term "High Tech/High Touch" to describe the need for student involvement a year or so after micro-computers have been introduced in schools. The need for involvement is discussed in detail by Wayne Dyer in the book *Pulling Your Own Strings*. Dr. Dyer advocates involvement and physically doing something even in changing habits and attitudes. He says:

> "I read I forget,
> I see I remember,
> I do I understand."

The recently released and previously mentioned book by Dan Hull and Dr. Dale Parnell, *Tech Prep Associate Degree: A Win/Win Experience*, provides many excellent insights into Tech-Prep programs. This book is a MUST for ALL educators. A brief synopsis is found in Appendix A.

In visualizing Tech-Prep systems geared for the next century, a rough draft of a dissertation entitled "A Research-Based Analysis of Part E, Tech-Prep Education of the Carl Perkins Vocational/Applied Technology Education Act" has several timely and important suggestions. This dissertation draft by Cassy Key, from the University of Texas at Austin outlines and defines current issues and trends in the Tech-Prep movement in the school systems of America. This Tech-Prep program is promoted as "holistic, community-building enterprises"; "Tech-Prep systems are more than curricula connections, or technical, education course sequences." Ms. Key states that this system embraces "all aspects of student development and a broad array of curricula offerings." She emphasizes that since school principals are the most important change agent in school systems, a very important Tech-Prep principle is to involve principals from the beginning.

Timelines for establishing and evaluating the validity of Tech-Prep appears to take a minimum of 5 years from inception to institutionalization. Early involvement by all area systems and shared visions are keys to success. Advisory council involvement is a critical must in all successful programs and should include representatives from all groups that are affected by the Tech-Prep System. This includes interested parties from business, industry, labor, education (including junior high, secondary, community college and university-such as counselors, teachers, administrators, and state education personnel), community service organizations and public sector including students and parents.

Ms. Key warns that the failure of Tech-Prep programs can be blamed on: (1) a faulty or cumbersome communication system, (2) poor interpretation of labor-market data and (3) ignoring "student development issues." Failure can be suppressed by establishing a mission for the system that prepares students for marketable jobs with a "career" future for employment and lifelong learning.

Marked issues in the draft discuss such things as the "integration of Academic and Vocational Education." The report states that integration of academic and Vocational Education is repeated 60 times in the 1990 Perkins Act. Primary integration of both academic and vocational education is through the requirements of traditional English, mathematics, and science courses or through applied academic courses. The applied courses take various learning styles into account while showing the relevance of the material being taught. Another stated issue is from research suggesting that the movement by states to increase requirements in the number of academic courses for graduation has actually increased the student dropout rate, limited vocational courses, and decreased opportunities for student work experiences.

Tech-Prep systems should not be a dead end program at the conclusion of an associate degree or certificate program. Proper arrangements in articulation must be addressed and delivered as clearly a career ladder.

Over 60% of the dissertation draft covers line-by-line analysis of sections of the Act. Ms. Key covers different sections with certain comments relating to the pros and cons of the statements. Certain technical parts are either emphasized or alternatives are discussed. One instance, for example, states that "...program curricula appropriate to ..." is editorialized as "this means creating competency-based curricula...." The report concluded with the following:

> Although the tasks ahead are immense, the value of meeting these tasks well is clear. Students have much to gain, as do business, industry, and labor organizations. Educators have their validity at stake, and some believe that quality of life in the United States depends on how well today's Tech-Prep System planners put forth the strategies to develop Tech-Prep Systems geared for the 21st century.

Interviews.

Telephone interviews were conducted with several important Tech-Prep and articulation specialists. Dr. Maurice Dutton, Senior Research Associate of C.O.R.D., was interviewed to determine the location of several outstanding, on-going Tech-Prep programs. This interview yielded several outstanding programs, names of the directors or coordinators, telephone numbers, and program hallmarks and attributes. These are exhibited in Appendix B.

A second telephone interview yielded significant information concerning Tech-Prep and at-risk students. Dr. James L. Hoerner, Associate Professor and Project Director at Virginia Polytechnic Institute and State University, Blacksburg, Virginia consented to a telephone interview on May 7, 1991. Dr. Hoerner is a Project Director for the National Center for Research in Vocational Education, University of California-Berkley. He presented a paper at the recent (March 1991) American Technical Education Association's Annual Conference entitled, "*Tech-Prep: A Viable Solution for the Forgotten Half.*"

Dr. Hoerner shared one aspect of Tech-Prep currently being overlooked with at-risk students. Many at-risk students need to work. Their families are at or below the poverty level and depend on this income to provide family necessities. For these students, staying in the educational system until high school graduation is difficult, but remaining in school for two additional years borders on the impossible. For Tech-Prep to work, a four year continuum must take place. Dr. Hoerner labels his solution the Work INcentive Model for Tech-Prep (WIN). Central to the WIN Concept is the real world of work. He suggests that "industry involvement go beyond advisory committee participation" and "that employers assume a full role by contributing student work based experiences throughout the four-years of the Tech-Prep program." In the WIN model, employers not only assist with curricula support but also provide a variety of work experiences such as co-op, internship and OJT-apprentice type activities. Real employment during the summers is also a part of this model. Students will work and receive needed income. Students will experience an earlier correlation between education and the world-of-work. Employees have an opportunity to evaluate the technical and educational potential of a possible permanent employer. Having these industry connections and linking those in-need students to those job links can assist at-risk Tech-Prep students to graduate. Dr. Hoerner's model is illustrated in Chart I Page 13. This model could greatly assist at-risk Tech-Prep students. Several important aspects for all at-risk students needs to be emphasized.

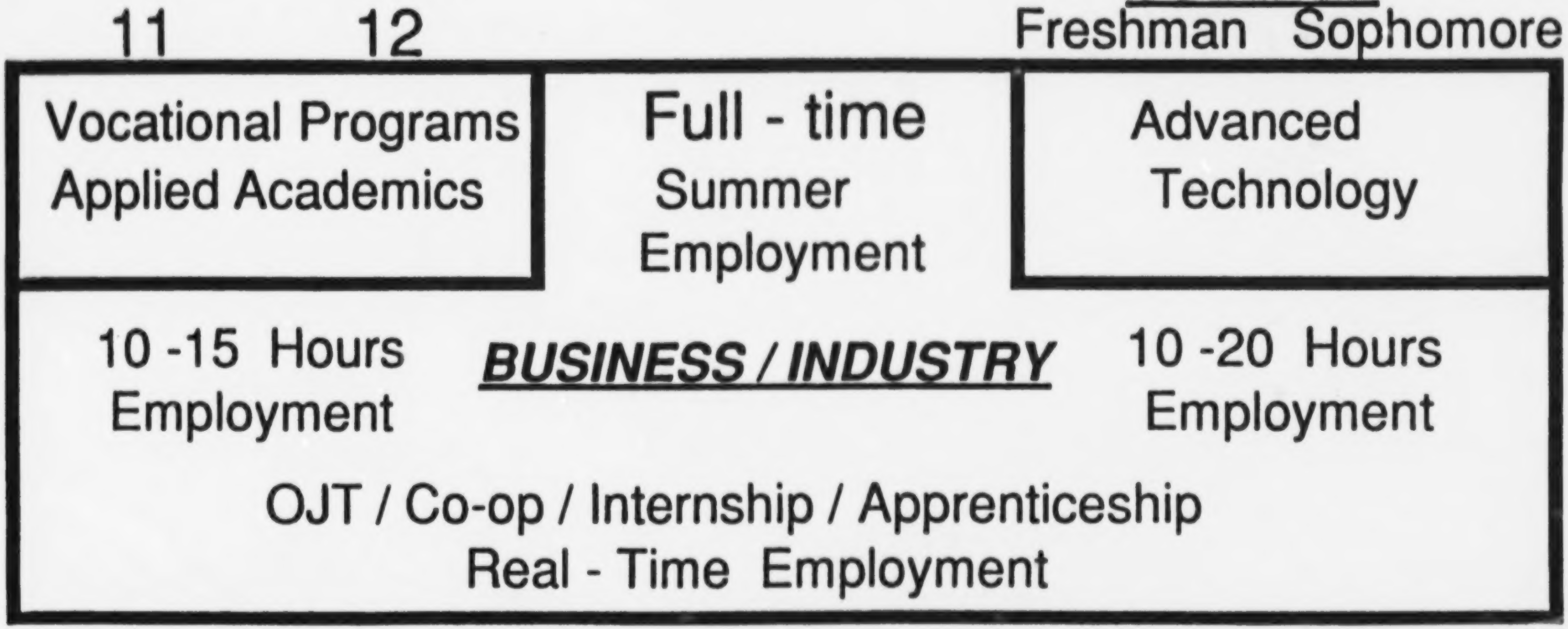
At-risk students need to be identified early in their educational career. The earlier identified, the better chance of keeping them in the system. To wait until the eleventh grade and assist students with a part-time job may "save" only marginal at-risk candidates. Needed income could be just part of an at-risk student's problem. Judicious linkage to part-time employment is advised. At-risk students need additional out-of-school study. Louisiana presently uses extended day, peer tutoring, and an extended school year to address this problem. Some educators justifiably argue that getting a job may exacerbate the at-risk student. Guidance and counseling services need to assist these at-risk students. Special assistance in time management and study skills to compensate for study time lost, for additional fatigue, and for the loss of recreation and social life must be provided. A coordinated effort between the work supervisor and the at-risk student is paramount. These students need to recognize the close connection between a continued education and promotion beyond the entry level job, as well as long term job security and remuneration.

These at-risk students need to recognize several connections between dropping out and continuing their education. A clear connection must be made between dropping out and a low paying entry level job that offers little security and is unfulfilling after several years. A linkage between a post-secondary education and a higher paying, more secure, more satisfying job must be clearly delineated for all the at-risk students but especially for the working at-risk students.

WORK INCENTIVE MODEL FOR TECH PREP

HIGH SCHOOL

COMMUNITY / TECHNICAL COLLEGE



11 12

Freshman Sophomore

Vocational Programs
Applied Academics

Full - time
Summer
Employment

Advanced
Technology

10 -15 Hours
Employment

BUSINESS / INDUSTRY

10 -20 Hours
Employment

OJT / Co-op / Internship / Apprenticeship
Real - Time Employment

James L. Hoerner
NCRVE - 1990

An early taste of the freedoms which results from this income might trigger an at-risk student's abandonment of his/her pensive post-secondary plans. A cautiously developed and a piloted program, closely monitored for results, seems important.

N.A.I.T. Conference

N.A.I.T Conference Personal Interviews.

During October 3-6, 1990, the National Association of Industrial Technology (NAIT) Annual Conference (now referred to as 'The Conference') yielded abundant Tech-Prep and articulation information. Prior to The Conference, contacts were made and appointments were scheduled for in-person interviews with two experienced and recognized authorities on the topic of articulation. Two in-person interviews were conducted during The Conference.

Dr. John R. Sutton, Head of Industrial Sciences, Colorado State University, traced the evolutionary process of articulation. He defined the differences between course-by-course and capstone articulation models. He advised that once administrators of institutions agree to articulate, then faculties must meet, define spheres-of-responsibility, and course transfer acceptability. He recommends a capstone model articulation process. If the university accepts all transfer credits, then the student is assured of completing the lower division core and a true junior standing, not only in hours, but also in progress toward a degree. His closing comments centered on his formula for articulation success: 1. have university faculty serve as advisory members to two-year institutions; 2. push to keep open minds to what is being accomplished; and 3. to compromise at all levels. These are hallmarks to developing a good two-year to four-year articulation program.

Mr. Gregory F. Schumm, director of two-year Technical Programs, Wright State University, Celina, Ohio shared the following. Mr. Schumm indicates that many four-year institutions refuse to accept applied technology, two-year institution credits. The usual cited reason is non-academic applicability. He is of the opinion that four-year institution administrators and faculty think courses from two-year institutions lack content and have little relevancy to other curricula. Four-year institutions' administration and faculty generally distrust two-year institutions. Of particular concern are academically oriented courses such as "Applied Physics", "Applied Trigonometry", and "Applied Accounting". Many four-year institutions refuse to grant credits toward baccalaureate degrees for similar academic courses even if syllabi, text, faculty credentials, and depth of course content are similar.

N.A.I.T. Conference Presentations Allied to the Articulation and Transfer Process.

A conference presentation by Dr. Gunter Myran, President of Washtenaw Community College, Ann Arbor, Michigan, made an exciting presentation, "A new Paradigm for Technology Leadership: The High School-Community College-University Connection for the 1990's." In this presentation, Dr. Myran cited many changes and demands being made on technology education. Among ominous statistics cited in challenge to professional-technical educators, Dr. Myran gave some direct and pointed solutions for technical educators. He challenged higher education to restructure and reduce their response time from approximately twenty years to a more reasonable time frame. He called on post-secondary institutions to deal with multiple inputs as well as new information and technology. He suggested a shift from institutionally centered education to new-learning communities consisting of all instruction levels to include secondary, post-secondary, business and industry, and government. Only by working as an "outward seeking educational network" can education begin to respond and reshape how we interact in society.

A second relevant conference presentation entitled "Articulation between Community College and University Technology Programs" was made by three faculty members of Colorado State University. The panel presentation by Dr. John R. Sutton, Head of Industrial Sciences, Professors Bill Cullen and Bill Lee focused on the successful development of a program-transfer agreement that resulted in zero loss-of-credit for two-year students transferring to four-year programs. They highlighted items contributing to this program's success. These included: Faculty attitudes toward transfer, two and four-year program philosophies, faculty council and senate issues, public relations and governing boards, principles of articulation agreements, face-to-face faculty discussions, leadership issues, and how to recruit two-year students.

Out-of-State Visitations

Two outstanding out of state Tech-Prep programs were visited. These were The Partnership for Academic and Career Education (PACE) and the North Carolina Tech-Prep Leadership Development Center.

On May 9, 1991, Mr. James Comeaux, Project Research Consultant, examined the holdings of AACJC, National Tech-Prep Clearing House, at Tri-County Technical College, Pendleton, South Carolina. Mr. Comeaux discovered several relevant holdings that may assist Tech-Prep consortia to reduce dropout rates. Holdings were also discovered to aid in reentry techniques. Additionally, the summary report of AACJC project, a Sears Foundation funded research project, entitled "Tech-Prep Program Description" was examined for important content information.

On May 10, 1991, Mr. James Comeaux, Project Consultant, and Mr. J. H. Pons, Project Principal Investigator, attended a seminar presented by Ms. Diana Walter, Executive Director of P.A.C.E. P.A.C.E. was recently dubbed as The Nations Best Tech-Prep Initiative by the U.S. Department of Education. On April 14, 1991 at the AACJC National Convention in Kansas City, Missouri, Ms. Betsy Brand, Assistant Secretary of Education presented this award to Dr. Don Garrison, President of Tri-County Technical College and member of the P.A.C.E. coordinating board. The seminar presentation was also attended by Mr. Paul McKay, Associate Dean of East Central College, Union, Missouri and Dr. Lee Thompson, Supervisor of Appalachian Vocational Education Coordinating Council. During the seminar, Ms. Walter presented the developmental history and on-going activities of P.A.C.E. Voluminous quantities of Tech-Prep curricula, guidance, industry involvement, and program promotional data were shared. A more detailed report of this seminar may be examined in Appendix C.

The second out-of-state visitation was to Hamlet, North Carolina. On May 24, 1991, Mr. Thomas Landry, Project Research Consultant, and Mr. Pons attended an Onsite Workshop sponsored by North Carolina Tech Prep Leadership Development Center. Richmond County Public School System and the Richmond Community College have had an articulated Tech-Prep curriculum for the past 5 years. Since the implementation of this academically enriched program, over 60% of students are enrolled in both the College-Prep program and the Tech-Prep program. Tech-Prep involves rigorous academic and technology course-of-study. Program results show that: 1. the 1989 enrollment in Algebra I increased 42% compared to the previous 5 years; 2. an increase in assessment and evaluation scores was noted; 3. algebra II enrollment increased over 55%. Other academic courses, such as advanced English, social studies and science courses, have shown significant increases in enrollment.

Articulated Tech-Prep programs in Richmond County can be summed up by school records which indicate that SAT scores have increased over 46 points in the last five years and the dropout rate has declined from an annual 7.2 percent to 4.8 percent. The most significant results are shown in the increased percentage of graduates that choose to continue to post-secondary, from 24 percent to 46 percent. Personnel involved in the program suggest that programs like theirs can be initiated without much increase in financial resources. A more detailed report of this seminar may be examined in Appendix D.

Non-Traditional Credit Award Methods

A review of several college catalogs indicates many institutions award credit for knowledges and skills acquired via non-traditional methods. Innovative methods devised to grant credit exist. Any student may earn non-traditional credit(s) by CLEP, by examination (credit-by-exam), by correspondence course(s), and by various military credit(s). Usually, non-traditional credits are limited to a maximum of 24 to 30 semester or 36 to 45 quarter hours.

One method of receiving college credit is via advanced placement. This could fall under one of four programs in place at most institutions. A nationally recognized Advanced Placement (AP) program is offered to selected secondary school juniors and seniors. Course offerings usually center on English, mathematics, psychology, and the sciences-chemistry, physics, and biology. To qualify, a student must have an ACT score of 24 or higher, have a B or better average, and be recommended by his/her principal or counselor. The faculty that teach these courses are college/university qualified. Close collaboration between the secondary school and the college/university faculties promotes success of this program. Student transcripts reflect "credit" only. The semester or quarter hour credits earned via this method do not figure into the student's grade point average.

A second method for high school students to gain college credit is the local advanced placement program. Students who have high ACT scores, usually 21 or more and have a B or better high school average, are allowed to take departmentally developed credit examinations. The areas most commonly tested are: English-Composition and Rhetoric and Freshman Literature; mathematics, college algebra, geometry, and trigonometry; sciences-chemistry, physics, and biology; foreign languages-French and Spanish. Each department determines minimum score criteria for placing-out of equivalent freshman-level courses. In reality, this is nothing more than credit-by-examination with the ACT and the high school grade point average becoming the credentials for taking the examination. Student transcripts reflect "credit" and no grade. Semester or quarter hour credits earned via this method do not figure into the students grade point average.

A third form of advanced placement or non-traditional credit is credit-by-examination. Students who believe they have mastered the concepts and skills of a course present a request for credit-by-examination. The typical procedure for this process follows. First, students interview with the instructor and/or department head of the course to be challenged. During the interview, validity of the request is ascertained. Second, upon verbal approval, the student completes the formal request and pays the appropriate fees. Third, a timely examination is scheduled. Usually, a recently developed comprehensive final examination is administered. A passing examination grade of "C" is generally the requirement set forth. Fourth, after grading the examination, the result is forwarded to the registrar where the course number is posted as "credit" or "no credit" and the semester/quarter hours earned. No letter grade is awarded in this course and it does not count in the student's cumulative grade point average.

A more recently developed fourth method of granting advanced placement is a modified combination of methods two and three. High Schools and colleges enter into an articulation agreement for selected courses taught in selected schools. To be eligible to participate in this program, students must have a "B" or better high school average, be recommended by the instructor of the course, and have signed an enrollment form for this program. The course content has been developed by the high school instructor in close cooperation with a college instructor of the same discipline. Particular attention is paid to ensuring that the essence of the college course and content be covered in the detail and depth associated with a college level course. Upon successful completion of the high school course, students desiring college credit for that course are scheduled to take an examination at the college. When the student successfully passes this examination, the college registrar opens a memorandum transcript for that student and "banks" this credit until the student enters the college. This banked credit is not applied to the student's transcript until the student has successfully completed one semester at that institution. Usually, these credits apply only to the issuing institution and thus become non-transferable either in whole or in part. There may be exceptions. When a student banks credit at a two-year institution but has a capstone agreement with a four-year institution, those credits generated in high school transfer to the four-year institution. In general, credit in the academic areas such as mathematics, English, and the sciences present no great problem when any of these credits are transferred to a four-year institution. A great problem exists when technical credits are transferred from two-year institutions to four-year institutions. Many courses offered at two-year institutions, especially the technically oriented courses, are non-transferable to four-year institutions. This becomes an extremely sensitive area for two-year and four-year college administrators and should be addressed in the articulation agreement. Two and four-year academically oriented institutions generally regard courses labeled "Applied" as less relevant. Many four-year institutions now award baccalaureate degrees in technology; thus, the four-year institutions should begin to accept more of the applied credits. Course numbering systems also aggravate the transfer process. For example, if a two-year institution offers a general Introductory Economics course and labels it Economics 200, and the four-year institution's equivalent is Economics 300, then the course becomes non-transferable. The student could always challenge the 300 level course, but this places an additional time and financial burden on the transfer student. Similarly, if the two-year institution offers that same Economics course at the 300 level, the course becomes nontransferable since no 300 level course is acceptable for transfer from a two-year institution. Additionally, most four-year institutions limit the maximum number of two-year transfer credits. This number is usually between 60 and 70 semester hours and 90 to 105 quarter hours.

Even if the four-year institution *accepts* the credits in transfer from two-year institutions, many of these credits may not *apply* towards any degree since the application-of-credit process is generally left to the discretion of either a dean or a program department head to which the credit is to be applied.

Advisory Committee

During the early research stages of this project, an advisory committee was formed to assist this project. The three members who represented the Lafayette Parish School System were Mr. Burnell LeJeune, Vocational Education Supervisor, Mr. David Lutgring, Principal of Carencro High School, and Mr. Francis Arceneaux, Lafayette Parish Career Center. Two members representing the Lafayette Regional Technical Institute were, Mr. Ted Ardoin, Director; and Mr. Chris Simon, Drafting Instructor. Three representatives of the University of Southwestern were Dr. Gary Marotta, Academic Vice President; Dr. Doris Chretien, Dean of General Studies; and Dr. Annette Vincent, Associate Professor Office Administration Systems. The two industry advisors were Mr. Curtis Hoglan, C.E.O. Lafayette Economic Development Authority and Mr. Don Carlin, President Moore's Pump Service, Lafayette, Louisiana. This group met three times and gave guidance to the project director and the consultants. The committee also evaluated the outline and rough draft of the research findings.

In-person Interviews with Selected Institutions

Rationale

Credit transfer from institution to institution and the acceptance of credit-for-transfer requirement imposed on SACS-COC accredited institutions were the issues used to develop the data collection instruments. A copy of each form is found in Appendix E. A major objective of any Tech-Prep program is a culminating two-year certificate or two-year associate degree award. Ideally, such awards should provide Tech-Prep graduates the capability for baccalaureate matriculation. An underlying Tech-Prep tenet is that graduates from one level experience little or no duplication or loss of credit as they move to another educational level. Thus, this applicable articulation concept of credit for demonstrated knowledge and skills is important to future Louisiana Tech-Prep programs. Since these issues directly concern four and two-year degree granting institutions, it was decided that these institutions would be the information collection starting points.

Five different institutional interview forms were developed. One for each of the following were used: Four-Year Institution Academic Vice-President or Designate; Two-Year Institution Dean or Designate; Four or Two-Year Institutions Registrar; Technical Institute Director; and High School Principal or Designate.

In Louisiana, there are seventeen publicly supported four-year institutions, five publicly supported two-year institutions, forty-nine publicly supported technical institutes, and sixty six publicly supported secondary school systems. Three of the seventeen four-year institutions were eliminated from the study since they did not offer two-year Associate Degrees. Due to the limited available time, seven of the fourteen four-year institutions were randomly selected for study. Each institution was assigned a number from one to fourteen and seven numbers were randomly selected via lottery. The four-year institutions selected by lottery were: Grambling State University (GSU), Louisiana Tech University (LTU), McNeese State University (MSU), Nicholls State University (Nicholls), Northwestern State University (NSU), Southeastern Louisiana University (SLU), and the University of New Orleans (UNO). There are only five two-year institutions and all five were studied. Technical institutes and secondary school systems were selected on the basis of information discovered from the four and two-year institutions. Initial contacts were made by telephone. This initial dialogue assisted in further defining and establishing the scope and nature of the interview form. Appointments were scheduled with the appropriate individuals. Twenty-seven interviews were conducted as a result of this process.

Findings

General.

All two-year institutions have some form of articulation agreement with four-year institutions. Two or four-year institutions have few binding, course-for-course or program-for-program agreements with technical institutes or high schools. The SACS-COC restriction that an institution only accept credits from a similarly accredited institution is the basis most cited for not accepting technical institute credits. There are exceptions to each of these general findings and each are to be discussed.

Four-Year Institution Interviews.

Chart II, page 25, summarizes the four-year institution interviews. The Vice-President of Academic Affairs and Registrar or their designate(s) were interviewed. Of those interviewed, UNO, reported several capstone programs with Delgado. UNO reports they no longer offer two-year associate degrees. UNO has recently become a limited admissions institution. Entering students must present an ACT composite score of at least 20 or more or an associate degree. A maximum of 60 semester hours may be transferred to UNO. Two Delgado Community College (DCC)-UNO capstone programs require more than sixty hours for the associate degree. By mutual consent, these students transfer to UNO with 60 prescribed hours. After one semester at UNO, the 6 credit hours are transferred back to DCC so that the two-year associate degree may be awarded by DCC. Thus, the student receives the associate degree and matriculates to a UNO baccalaureate program without loss of DCC credit. If the student were

Summary of Articulation Interviews Four-Year Institutions

School	Capstone	Course by Course	Other	Copy of Agreement	Transcript Policies in Catalog	Transcript Policy Differs for 2-yr	Transcript Policy Differs "Applied"	2-yr Policy in Catalog	High School Student Receive College Credit	Advanced Placement (National)	Advanced Placement (Local)	CLEP	Credit by Exam as part of High School	Credit by Exam College/University
1 Gramling State University			A	X				X	X	X		X		X
2 Louisiana Tech University		X		X				X	X	X	X	X		X
3 McNeese State University		X	B	X					X	X	X	X		X
4 Nicholls State University		X		X					X	X	X	X		X
5 Northwestern State University		X	C	X					X	X	X	X		X
6 Southeastern Louisiana University		X		X					X	X		X		X
7 University of New Orleans	X			X					X	X		X	X	X

Notes: A. Usually equivalency listing; some informal capstone with Junior Colleges.

B. Unique agreement with Sowela Technical Institute. Sowela faculty teaches courses; use McNeese Outlines and Textbooks. At completion of course, if for college credit, take an exam at McNeese by department.

C. Unique LPN to ADN program; Summer review program for LPNs. Take credit exams for up to 13 semester hours. Will not transfer to BSN.

Chart II

to complete the DCC two-year degree requirements prior to transfer to UNO, six DCC credits would be "lost". Even more important is the fact that these six hours would have to be repeated at UNO. This arrangement, the reciprocity agreement, is an example of a working articulation agreement.

Five of the seven universities interviewed reported course-by-course agreements with two-year institutions. GSU and UNO report no course-by-course agreements; however, GSU reports using something very similar to a course-by-course agreement. GSU has developed a course equivalency list for other institutions where students frequently transfer. Essentially, GSU faculty, department heads, or deans examine and evaluate other institutions' catalog courses for equivalency. In some cases, requests are made to other institutions for course syllabi and required textbooks to determine if there is a true equivalency. GSU also reports they have capstone-type agreements with several out-of-state junior colleges.

Another agreement has been developed between MSU and Sowela Technical Institute (Sowela). This articulation agreement is rather unique in Louisiana since it links a four-year institution with a technical institute. College level, academic courses are taught at Sowela. Sowela teachers have met with their MSU counterparts and have agreed on course content and activities. When the students complete the Sowela course, they may also take a college credit examination administered by the appropriate MSU department. If the student is concurrently enrolled at MSU and Sowela, they receive credit at both institutions. Students enrolled only at Sowela may opt for the MSU credit examination at some later date. This is an articulation example where several obstacles are overcome by using available remedies. Awarding college credit for a course taught by a non SACS-COC accredited institution is overcome by using credit-by-examination. This method, credit-by-examination, is used by all studied institutions. Articulation intent and spirit are fully realized by MSU and Sowela.

A Licensed Practical Nurse (LPN) to Associate Degree in Nursing (ADN) articulation program is in place at NSU. Since no other specific school is involved, this program is not an articulation agreement as such. Practicing LPN's desiring an ADN may enroll in a three week summer review program. At the end of this review, participants take a series of examinations and may earn up to 13 semester credits toward the NSU, ADN. This review and examination technique provides for upward mobility for LPN's without course repetition. A drawback to this program is that the credits awarded by examination will not transfer forward toward a Bachelor of Science in Nursing (BSN).

All seven universities provided or would provide copies of their agreements. All seven published transcript evaluation policies are in their respective catalog. Two, GSU and LTU, have separate two-year institution transfer policies published in their catalog. None of the seven report overt variance in their evaluation of applied associate degree credits. All "accept" and "post" to the new transcript every transferred credit from an accredited institution. "Application" of these credits is left to the discretion of the dean or department head where the student intends to transfer. The "application policy" is the crux of credit transfer. Applied science and technical associate degree graduates usually find little or no "application" for their "technical" course credits at the four-year institution. Since applied science and technical courses in associate degree programs encompass 30 semester credits or more, significant credit is lost in transfer to four-year institutions. In most cases, since there is no equivalency, these applied science and technical courses are not used as "free electives." Transfer application and the loss of credit for applied science and technical courses are strong arguments for capstone articulation agreements. These agreements provide two-year technical graduates with clear and specific transfer credit. Articulation agreements save valuable administrative time ensuring consistent transfer credit application from student to student.

All selected institutions participate in the nationally recognized Advanced Placement (AP) program and CLEP. Four schools, LTU, MSU, Nicholls, and NSU, also have locally developed versions of advanced placement. These locally developed programs provide students, who meet certain criteria, the opportunity to take departmentally developed and administered credit examinations. Students who successfully achieve at least the necessary minimum score receive credit and are allowed to enroll in a higher level course. Although not an articulation agreement, this credit-by-examination method meets the articulation spirit. These locally developed advanced placement programs focus on the traditional academic courses such as English, mathematics, science and the arts. Participants are selected primarily on ACT scores and high school grade point average. With the exception of typewriting/key boarding, entry level technical and professional courses have not become a part of this program. Business/office administrative departments have begun to administer performance based examinations for qualified students.

Two-Year Institution Interviews.

Chart III, page 29, summarizes the information gathered from the two-year institution interviews. The dean of instruction and the registrar or their designate were interviewed. Four, Bossier Parish Community College (BPCC), DCC, LSU at Alexandria (LSU-A), and LSU at Eunice (LSU-E) have capstone articulation agreements. DCC has capstone agreements for 23

Summary of Articulation Interviews Two-Year Institutions

School	Capstone	Course by Course	Other	Share Copy	Normal Transcript Evaluation Procedure in Catalog	Process Differs for Associate and Applied Associate	Transcript Evaluation for Technical Institute Publish	Accept Post-Secondary Technical Institute Credits	High School Student Receive College Credit	Advanced Placement (National)	Advanced Placement (Local)	CLEP	Credit by Exam as part of High School	Credit by Exam College
1 Bossier Parish Community College	X	X	A	X	X			B	X	X	X	X		X
2 Delgado Community College	X	X		X	X			C	X	X	X	X	X	X
3 Louisiana State University at Alexandria	X	X		X	X	X			X	X		X		X
4 Louisiana State University at Eunice	X	X		X	X				X	X		X		X
5 St. Bernard Parish Community College		X		X						X		X		X

Notes:

A. Mostly course-by-course; special Industrial Controls and Applied Health program.

B. Although not an exact transfer of credit, Bossier Parish Community College has a unique cooperative agreement in Industrial Controls. Four Technical Courses are taught at Shreveport-Bossier Technical Institute; faculty accreditation monitored by college.

C. LEAP program provides means for student to get technical credits for Industrial courses or significant life experiece.

Chart III

different programs with five institutions. These are Loyola University, Our Lady of Holy Cross College, SLU, UNO and Xavier. DCC has over 400 courses listed in an equivalency booklet to assist students in determining the transfer ability to the eight four-year institutions with articulation agreements.

BPCC has cooperative agreements with NSU, GSU, and Kilgore College, Kilgore, Texas. The agreement with NSU is for the ADN, and BS in Radiologic Technology. These agreements, while not a capstone type program by definition, have similar attributes and are designed as transfer programs. In these programs, students begin BPCC with selected courses that meet each institution's freshman and sophomore requirement. In certain cases students are dual enrolled. This facilitates a smooth transition from BPCC to the selected four-year institution.

Since both LSU-A and LSU-E are part of the LSU system, certain BS/BA curricula are defined as transfer curricula to LSU Baton Rouge. Students completing a transfer curricula are allowed to receive an associate degree in general studies. For other curricula, LSU-BR has designed and distributed to system institutions a computer based course transfer table. This table provides course equivalency for those courses that transfer to LSU-BR. All two-year institutions have course-by-course and/or equivalency listings for LSU-BR and other four year institutions in their immediate geographic area.

BPCC has an agreement with Shreveport-Bossier Technical Institute (SBTI). For the BPCC Associate Degree in Industrial Control Systems, four courses are offered on the SBTI campus. These courses are taught by SBTI faculty. These faculty meet the SACS-COC requirements. This agreement eliminates costly facility and equipment duplication. These courses are offered as late afternoon or evening courses so they do not interfere with SBTI's normal class schedules. The agreement also makes use of qualified, technical, highly specialized faculty who otherwise might be difficult for BPCC to locate.

With the exception of St. Bernard Community College (SBCC), all two-year institutions publish their normal transfer transcript evaluation procedures. LSU-A evaluates differently the transcripts of transfer students whose major was in an applied associate degree area. No transfer credits are allowed at LSU-A for courses which will not transfer to another four-year institution.

BPCC and DCC each have devised a method to grant technical credits to students with significant life experience, on-the-job-training, or highly specialized non-credit industrial training. BPCC allows credit by examination for non-traditional courses that are applicable to a degree program provided these courses do not duplicate other earned credits. At DCC, up to 24 semester hours credit may be earned through six different non-traditional methods. Students may not earn non-traditional credit for a previously completed college course. DCC students may only place out of one third of their major courses. Because DCC has the LEAP (Life Experience Assessment Program), skills and knowledges gained in a technical institute program could possibly result in college credits.

All two-year institutions espouse AP and CLEP as well as credit by examination. BPCC and DCC have a locally developed advanced placement program.

BPCC refers to their program as AIM (Activating Inquisitive Minds). This program provides special learning and exploring opportunities of gifted students. BPCC also has a "2 + 2" program in business education. High school juniors and seniors set career goals and take courses while in high school that build a business foundation. To be eligible, students must complete a minimum of two high school business courses. Students must maintain a "C" average while in high school. When these students graduate from high school, they receive a scholarship that pays one-half of their college tuition. Advanced placement or credit for basic courses may also be achieved in the "2 + 2" program.

DCC has the only operational true Tech-Prep program in Louisiana. This program permits juniors and seniors from specific Orleans, Jefferson, and St. Tammany Parish Schools to bank credit toward an associate degree at DCC. The banked credit method is used to award college credit for advanced high school work. DCC began operating this program in the fall of 1990. The 2 + 2 articulation linkage ranges from commercial art to automotive technology as well as for English and mathematics.

Technical Institute Interviews.

Chart IV, page 33, summarizes the data collected from the technical institute interviews. Of the technical institutes studied, only SBTI and Sowela have a working agreement with a SACS-COC accredited institution. These agreements are described under the two-year institution interviews, page 28 and four-year institution interviews, page 24. These two programs give an insight as to how articulation in technical education can provide an effective, yet cost efficient, educational process that alleviates course content repetition and assures that accreditation standards are not compromised. South Louisiana Regional Technical Institute (SLRTI) is presently working with Nicholls in developing an articulation agreement for LPNs to receive credit in the ADN and for Drafting Technology graduates to receive credit in Industrial Technology.

All studied technical institutes provide advanced placement by examination. These examinations are used to place students who have completed related high school or college/university studies.

Summary of Articulation Interviews Technical Schools

School	Capstone	Course by Course	Other	Advanced Placement for High School Work	Advanced Placement Policies Published	Credit Transfer to 2-yr or 4-yr Institutions	Other Programs							
1 Alexandria Regional				X										
2 Houma Regional				X		C								
3 Lafayette Regional				X			E							
4 Monroe Regional				X										
5 Shreveport-Bossier Regional			A	X		A								
6 Slidell Technical			D	X		D	D							
7 Sowela Technical			B	X	B		B							

Notes: A. Many cooperative agreements with local two-year and four-year institutions. Some formal, most informal. Bossier Parish Community College Industrial Controls.

B. McNeese University credit-by-examination. Too new to publish. Unique high school program with Calcasieu Parish for 12th graders. Spend all day of Senior Year. Academic requirements provided by school board; students get credit toward certificate.

C. At present working with Nicholls State to develop examination procedure for LPN and Drafting graduates to receive credit.

D. Agreement with Delgado; at risk pilot project with St. Tammany Parish.

E. Articulation with Lafayette Parish School Board in Drafting and Office Occupations. In process of developing 2 + 2 concept with Lafayette Parish School Board.

Chart IV

This placement examination reduces course duplication. As a result, transferring students are able to shorten the time for graduation, are able to join the work force sooner, and reduce the cost of their education.

Lafayette Regional Institute (LRI) is presently working with the Lafayette Parish School Board (LPSB) toward developing a Tech-Prep based articulation program. A LPSB school, Carencro High School (CHS), is a Southern Regional Education Board (SREB) pilot site for implementation of strategies to strengthen basic competencies in Vocational Education. CHS is also in the process of implementing the Principles of Technology course. When fully implemented, this program will permit selected high school graduates to receive advanced placement status at LRI without LRI testing. Close coordination in the high school and LRI's curricula will permit high school graduates, with acceptable grades in technical courses, advanced status at LRI.

Parish and High School Interviews.

A summary of the parish and high school interviews is displayed in Chart V, page 35. Eight different parish school systems were participants. Six of these presently have or are working toward developing agreements with area technical institutes or colleges. Two high schools, Woodlawn in Caddo Parish and Carencro in Lafayette Parish, are SREB pilot sites to develop, apply, evaluate, and promote strategies to strengthen basic competencies of high school students enrolled in Vocational Education programs. Woodlawn also implemented the Principles of Technology course in the fall of 1990. Carencro plans to implement Principles of Technology in the fall of 1991. Three parishes, Jefferson, Orleans, and St. Tammany, have a Tech-Prep and 2 + 2 agreement with DCC. This program is described on page 32.

Summary of Articulation Interviews High Schools

Parish/ School	Have Agreement	Working Toward Agreement	Share Copy	Participate in National AP	Advanced Placement in Technical Institute	Local Advanced Placement 2-yr	Local Advanced Placement 4-yr	Other Programs Associated With Tech-Prep						
1 Caddo/ Woodlawn H.S.	A	A	X	X	X									
2 Calcasieu/	X		X	X	C									
3 Jackson/				X	X									
4 Jefferson/	B			X		X								
5 Lafayette/ Carencro H.S.		X	X	X	D			X						
6 Iberia/				X	X									
7 Orleans/	B		X	X		X								
8 St. Tammany/	B		X	X		X		E						

Notes:
- A. Informal 2+2 AP with BPCC in Business Education; in early stages with LTU.
- B. Selected Schools in selected programs. Not all schools have all programs.
- C. Unique program for seniors with Sowela.
- D. In process of developing Tech-Prep program; no testing for advanced placement.
- E. Agreement with Slidell Technical Institute and Delgado.

Chart V

In Jefferson Parish, 13 courses articulate from all senior high schools. For each articulated course, the high school course name and number is placed next to the DCC course and number. Adjacent are the required competencies students must demonstrate to receive banked credit. Appendix F exhibits the Jefferson Parish DCC agreement. The Orleans Parish-DCC agreement is similar to the Jefferson-DCC agreement except that the eligible courses vary from school to school. Eleven different courses have been identified for articulation. Four of these, Algebra II and Trigonometry and English III and IV articulate from all Orleans Parish schools. The Commercial Art courses articulate only from L.E. Rabouin Vocational High. The auto Mechanics credits may be articulated from George Washington Carver and Booker T. Washington High Schools. Sarah T. Reed Basic Electricity/Electronics credit may articulate. Basic Technical Drafting I from seven Orleans High Schools and Technical Drawing I from only Marion Abramson are also articulated. Five schools participate in Word Processing articulation. While the Orleans agreement is similar to the Jefferson agreement, the format is slightly different since only selected courses articulate from selected schools. A copy of this agreement is exhibited in Appendix G.

The St. Tammany agreement includes not only DCC but also Slidell Technical Institute (STI). Twelve St. Tammany Parish high school courses articulate with DCC. The listing of courses, their DCC counterpart, and required competencies are similar to the Jefferson Parish agreement. Two STI and DCC articulated courses--Electronics (Basic Core) and Electrician--are aligned with the required competencies. Appendix H displays this agreement.

Both Calcasieu and Lafayette Parishes have opted for a seven period school day. In Calcasieu, the entire school system now operates on a seven period schedule. In Lafayette

Parish, the seventh period is optional for students at selected schools. By having a seven period day, students are able to accumulate up to 28 high school credits or enroll in advanced placement programs. Since up to 23 credits can be pre-ordained-(College-Prep LSU-BR bound students)- only one "free" elective is available if the school is on a six period schedule. At best, the average student will have only 5 to 7 1/2 elective credits. This limited freedom is seen by some to be "the answer" to Louisiana's poor educational status. Others contend that having few relevant electives for students increases the propensity for them to drop out of school. Meaningful technical electives, steeped with significant applied mathematics, science, and English can not only reverse the alarming dropout rate, but also increase the marketability of future high school graduates. Many potential dropouts may not only graduate from high school, but even be encouraged to continue in a post-secondary institution.

The seven period concept imposes a minimal monetary burden on a parish school system. Faculty either are given two planning periods or arrive after the school day begins or leave before the school day ends. Staff hours are staggered to accommodate the longer day.

All studied parish systems participate in AP. Through their 2 + 2 Tech-Prep articulation agreement, Jefferson, Orleans, and St. Tammany graduates are eligible to participate in DCC local advanced placement. Lafayette Parish and Lafayette Regional Institute (LRI) are presently working on an advanced placement program whereby qualified students may receive advanced standing in LRI technical programs.

Organization of a Tech-Prep Program

The successful Tech-Prep programs observed were administered by a consortium composed of a number of schools or even a number of school districts and two-year degree granting institutions. However, the Act provides for the association of school districts and two-year certificate granting technical institutes in the forming of consortium with articulation and transfer course powers. The consortium usually has someone from a post-secondary institution acting as a coordinator. Articulation from high school to a two-year institution and then to a four-year university is encouraged for some students. An important initial strategy step is the appointment of an advisory committee which includes members from industry, labor, business, the education sectors, including junior high school, high school, career centers, technical institutes, community colleges, universities, and community service organizations. Industry connection and involvement are especially important throughout the program. Industry should be completely involved in the development, implementation, and job placement strategies of the Tech-Prep System. These statements are affirmed by the leadership of both PACE and the North Carolina Tech-Prep Leadership Development Center. Furthermore, the advisory committee for this research effort expressed the need for the advisory committee to be constituted with greater industry representation. This committee urged future Tech-Prep initiatives to give industry meaningful involvement in curriculum development and job placement. They further advised not to relegate industry members to the status of financial resource and a "rubber stamp" for educator programs. The advisory committee should be involved with developing administrative policies, the program of study curriculum, and job placement. A functional and successful Tech-Prep program integrates academic and vocational education curriculum.

At the secondary level, the vocational phase usually includes Vocational and/or Industrial Arts, now referred to as Technology Education courses. The academics usually includes regular and applied mathematics, science, and communications courses. By using industry applications and hands-on activities, the curriculum becomes extremely relevant in all classes both academic and vocational-technical.

Fred Hechinger in his *Fortune* article *School College Collaboration* addresses the issue of relevance in discussing the need for continuity. "If we want to reform the schools, two things are essential: continuity, all the way up the line; and understanding the 'why' of every single course. Read Bruno Bettelheim on that. Whatever you teach, make the children understand why they are studying it. Don't tell them: 'You'll need it later.' Later may not exist." He continues, "...many people learn academic subjects better in a context they can understand... we're talking about kids who hate math. But if you can show them they need it for blueprints, they'll do it."

Successful Tech-Prep programs are more than connections or technical education course sequences. They encompass all aspects of student development and a broad array of curricula offerings. Central to the idea of Tech-Prep is the establishment of a Consortium- a binding of education, the community and industry. The group comprising the consortium should be of significant size-as big as possible without being cumbersome. Because many students move from one school to another, consortium and articulation agreements should be transportable not only from secondary school to secondary school, but also from secondary school to post-secondary school or Technical Institute and from post-secondary to post-secondary or two-year institutes. Movement from two- year degree institutes to four-year degree baccalaureate granting institution is also encouraged.

Components.

The Tech-Prep education plan has three components:

(1) Integration of applied academics. Perry, in a *Fortune* article says, "Though only half of those who enter high school go on to higher education, American schools persist in treating non-college-bound students like second-class citizens. So, many drop out. Quality...programs can motivate students to stay in school--and maybe even go to college--by making academics more palatable".

(2) Providing work experience whenever possible. Carnevale in *Workplace Basics: The Skills Employers Want* says, "In most studies, between 10 and 13 percent of lifetime earnings among Americans can be attributed to the initial earnings that take place in school...but academic preparation leverages learning on the job...[workers with only] a high school diploma are not likely to get on-the-job training...[people with a diploma] plus two years of formal education have a 20 percent greater chance of securing such training. And those who have some college education have a 50% greater chance."

(3) The establishment of a Tech-Prep Career Ladder. Success of Tech-Prep programs demands: (a) both internal and external public relations, (b) inservice of counselors, teachers, and administrators at all levels, (c) establishment of monitoring mechanisms, (d) establishing procedures for job placement and (e) creation of a follow-up program. From the United States Department of Employment and Training *The Southeast's 21st Challenge* report, "secondary and post-secondary educational institutions should establish permanent "forums" which allow the exchange of ideas between employers and teachers. The employer/education connection must

move beyond simple "adopt-a-school" and "career day" programs to more in-depth interchange and cooperation."

Additional Tech-Prep success factors include: (a) involving students at the eighth or ninth grade level; (b) regionalized instructional delivery; (c) competency based instruction; (d) providing work experience for students; (e) establishing a career ladder; (f) broad based consortium; (g) active industry participation, and (h) providing assistance in obtaining jobs after completion of the program. In a *School Shop* article Welch urges, [that] "grades 13 and 14 are the new minimum for a person to succeed in a highly technological society."

Tech-Prep needs to be implemented from the top. The school superintendent needs to be sold on its merit initially. Each successive level of school administration must also become convinced of the value of Tech-Prep. Special emphasis must be given to guidance personnel. Finally, the teachers who will teach the academic and technology program have to really believe in Tech-Prep. Early success in the program is important and needs to be publicized. The significance of the curriculum change must be emphasized. Tech-Prep is not "blue collar" or "watered down," it is a very strong and effective curriculum. According to Hull, "It's Not Easy; It's Just Easier to Learn." Kolde in the *Phi Delta Kappan*, exhorts, "The classroom of the future is one that integrates academic and technical knowledge and skills.... This model makes good educational and economic sense and will prove, as the history of educational reform is written, to have been a most valuable design." According to a recent study conducted through the University of Florida, "Earning by Degrees: The Financial Benefit of the Associate Degree," *The Community, Technical and Junior College Times*, "people who earned associate degrees earned about the same or more money as bachelor's degree holders" in five of the eight employment categories studied. [However], "it is not a matter of whether a two or a four-year degree is better...each has a distinct value within the job market."

Formative and applicable work experiences and involvements increase as students move up in the program. At the post-secondary level, higher order technical skills are the emphasis. Better academically prepared students bypass academic remediation. First year post-secondary students are able to succeed in level English, mathematics, and science courses. Immediate progress toward the certificate or associate degree raises student self-esteem and promotes a sustained effort in more rigorous academic and technical courses. The entire Tech-Prep process promotes a positive work ethic and marketable career skills. Tech-Prep does not replace College-Prep or Vocational Education but compliments and parallels them. Education should be viewed as a lifelong endeavor, something that is never completed but always evolving. All students, but especially Tech-Prep students must be made aware of this. Every person eventually enters the work force and students must be made aware of this constantly. Chart VI page 43, illustrates how a Tech-Prep program can mesh into the educational system.

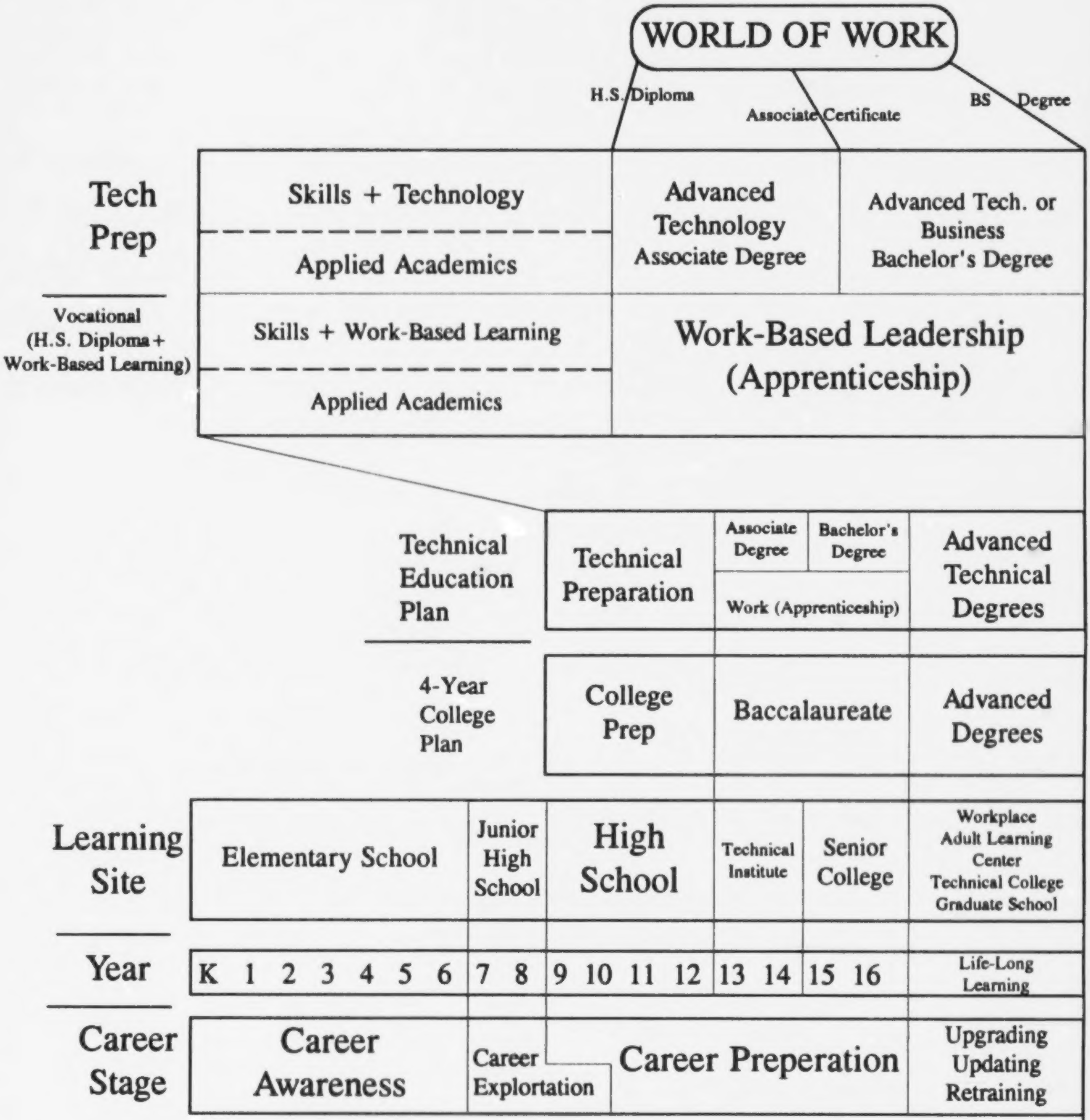
Ancillary Services.

Some needed ancillary Tech-Prep services include public relations, in-service training of faculty and counselors, student monitoring or assessment mechanism, job placement, and a follow-up program. Programs of excellence give special consideration to each the following.

A. The program should provide effective employment/placement activities and credit transfer to four-year baccalaureate degree programs.

B. The Tech-Prep System should be developed in consultation with business, industry, and labor unions.

TECH-PREP PROGRAM


WORLD OF WORK
H.S. Diploma
Associate Certificate
BS Degree
Tech Prep
Skills + Technology
Applied Academics
Advanced Technology Associate Degree
Advanced Tech. or Business Bachelor's Degree
Vocational (H.S. Diploma + Work-Based Learning)
Skills + Work-Based Learning
Applied Academics
Work-Based Leadership (Apprenticeship)
Technical Education Plan
Technical Preparation
Associate Degree
Bachelor's Degree
Work (Apprenticeship)
Advanced Technical Degrees
4-Year College Plan
College Prep
Baccalaureate
Advanced Degrees
Learning Site
Elementary School
Junior High School
High School
Technical Institute
Senior College
Workplace Adult Learning Center Technical College Graduate School
Year
K 1 2 3 4 5 6
7 8
9 10 11 12
13 14
15 16
Life-Long Learning
Career Stage
Career Awareness
Career Explortation
Career Preperation
Upgrading Updating Retraining

1. **Technology**	2. **Applied Academics**	3. **Skills**	4. **Advanced Technology**
ie.	ie.	ie.	ie.
Business	Applied Math	Electricity/Electronics	Electronics
Electricity/Electronics	Applied Science	Practical Nursing	EMT
Mechanical Systems	Applied Communication	Air Conditioning/ Refrigeration	Machine Systems
Nursing	Applied Technology	Keyboarding	Technology
Petroleum Service		Welding	Business
			Petroleum Service

Chart Modeled from *TPAD*, page XX (Hull & Parnell)

Chart VI

C. Tech-Prep programs should address the needs of dropout prevention, reentry of dropouts and non-completers, as well as the needs of minority youth, youth of limited English proficiency, youth with handicaps, and disadvantaged youths.

D. Students and their parents need to be involved in the planning process early.

The Junior High grades seem to be the best age-level to begin counseling and involvement in a Tech-Prep program. Although the paths are chosen at an early age, it is best to have exit and entry points and transfer capabilities to College-Prep and baccalaureate degree programs along the way. Experts agree that an operationally successful Tech-Prep program will take time to develop and implement. Tech-Prep is not just a minor change in how schools are run. Tech-Prep is a complete reconstructing of the philosophy-of-education and this takes time to develop and implement. The first year of a Tech-Prep Program should be a planning and training year. Planning is vital to Tech-Prep's success. Taking "canned" programs or making the mistake of copying some other program can be costly in time, money, and effectiveness. Money is not the solution. It takes time to plan therefore, it can be rather costly during the initial phases. However, from the successful programs visited, it is clear that the change of attitude, the spirit of cooperation, the desire to meet the "Forgotten Half" with a curriculum are more important than funding issues.

Training for ALL effected faculty and counselors who are supported by principals and a school board is a must. Without training, Tech-Prep programs would flounder, sputter, and fail. All school personnel must realize that this is not just another get tough or watered down College-Prep program. Educational leaders must also realize that a bachelor's degree is not needed by everyone and that our society is served well by two-year certificates and associate degrees. By 1995, only three of the top twenty jobs will require a bachelor's degree.

Suggested first year Tech-Prep time line is displayed in Chart VII, Page 46. Toward the end of the first year, the guidance activities should begin. In the second year, implementation begins. The applied academic area probably requires the most attention and development, since this is where change is most pronounced. The vocational and technical education facet will be somewhat easier to implement due to the similarity with traditional vocational training. The major difference is that the Tech-Prep technical courses will emphasize writing, computation, and scientific principles in conjunction with technical activities. Most experts agree that it may take up to five, six, or even seven years before a Tech-Prep program can become fully implemented and able to be effectively evaluated. Accountability and incremental measurements are critical to institutionalizing Tech-Prep systems.

Suggested Model Tech-Prep Program for Louisiana

The following is a model Tech-Prep program for Louisiana developed by this program's consultants. This model is illustrated in Chart VIII, page 47. The Tech-Prep program should operate under a consortium agreement. The consortium should span from the high school level to at least the associate degree level. This multi-level consortium should agree to develop a means to transfer students continually from the parish school system (PSS) to the technical institute (TI), college/university (CU), or both. An underlying tenet of a Tech-Prep program is excellence in technical education supported by applied and regular academics courses.

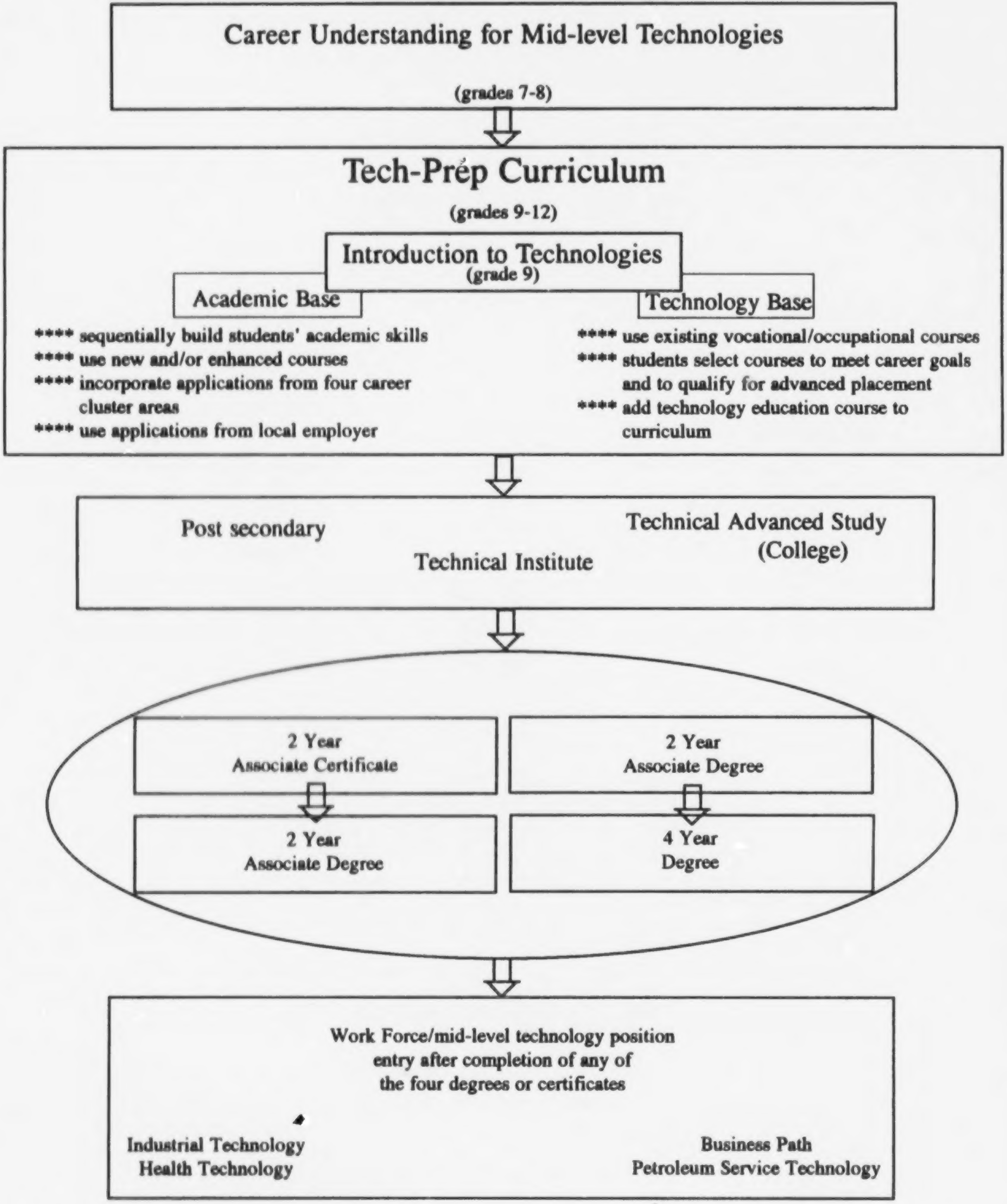
FIRST YEAR
PARISH
TECH-PREP TIMELINE

PROJECT TASKS	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7
1. ESTABLISH ADVISORY COMMITTEES	***						
2. ASSIGN COMMITTEES	***						
3. IDENTIFY NEEDS	****	****					
4. DEVELOP JOB DESCR. & COMPETENCIES		****	****				
5. DESIGN CURRICULUM & COURSES				***			
6. DETERMINE COURSE SEQUENCE		****	****				
7. DEVELOP COURSE OUTLINES/LAB ACTIVITIES			****	****			
8. ESTABLISH PROFICIENCY LEVELS			****	*****	***		
9. WRITE ARTICULATION PLAN					****	***	
10. DETERMINE APPROPRIATE FACULTY			****	****			
11. PREPARE BUDGETS					****	*****	****
12. PREPARE GUIDE BOOK					****	****	
13. CONDUCT WORKSHOP(S)						****	***
14. DEVELOP CRITERION TEST				****	*****	*****	****
15. DEVELOP FOLLOW-UP SURVEY						****	****
16. JOB PLACEMENT PLAN					****	*****	***
17. IMPLEMENT ARTICULATED PROGRAMS							

Chart VII

Chart Modeled from *Two-Plus-Two Articulation*, C.O.R.D., page 74

Model for Tech Prep



Career Understanding for Mid-level Technologies

(grades 7-8)

Tech-Prép Curriculum

(grades 9-12)

Introduction to Technologies
(grade 9)

Academic Base

- **** sequentially build students' academic skills
- **** use new and/or enhanced courses
- **** incorporate applications from four career cluster areas
- **** use applications from local employer

Technology Base

- **** use existing vocational/occupational courses
- **** students select courses to meet career goals and to qualify for advanced placement
- **** add technology education course to curriculum

Post secondary

Technical Institute

Technical Advanced Study
(College)

2 Year
Associate Certificate

2 Year
Associate Degree

2 Year
Associate Degree

4 Year
Degree

Work Force/mid-level technology position
entry after completion of any of
the four degrees or certificates

Industrial Technology
Health Technology

Business Path
Petroleum Service Technology

Chart VIII

Chart Modeled from *Tech Prep Preparation for Technologies*, P.A.C.E., page 13

Goals.

The goal of the consortium should be to plan and to demonstrate an effective, articulated, four-year, academically enhanced vocational and applied technology program. Within four-years, the consortium should design, implement, and evaluate a four-year Tech-Prep program that should culminate in either a two-year post-secondary technical vocational certificate or a two-year associate degree. Either or both of these two-year awards may provide a means for articulation into a baccalaureate degree program.

The following goals and outcomes are based in part on the PACE concept of Tech-Prep. Specific goals for Tech-Prep students should include:

1. To provide a coordinated sequential Tech-Prep curricula emanating in the middle school and culminating in either a two-year certificate or two-year associate degree.
2. To motivate students to complete their high school education by providing them with a hands-on, more relevant, experiential program-of-study.
3. To encourage students of the present general education path and vocational path to complete their occupational studies beyond the high school diploma level.
4. To prepare students to succeed in a post-secondary educational environment without the need for remediation.
5. To provide students with increased motivation to master academic concepts by using career related examples from business, industry, technology, and health occupations in the teaching of English, mathematics and science.
6. To provide students with enhanced academic skills in regular and applied mathematics, English and science for students presently in the general education path.
7. To increase the self esteem of students in the present general and vocational paths and enable them to identify with a directed, industry supported, career oriented program of study.

Desired changes as a result of the Tech-Prep program should emerge within four years.

Major Outcomes.

Major outcomes should include:

1. To provide that parish with a skilled work force enhanced in technical areas and serve existing and future industries. This new work force should be a dominant factor in recruiting new industry into this area.
2. Students may plan a secondary school path that prepares them for completion of a two-year post-secondary program. Students who receive advanced placement status may opt for enhanced technical competencies and higher level technical studies. Qualified advanced placement students also may elect to complete the program of study in less than two years. Tech-Prep graduates should be able to pursue a baccalaureate degree, if they so desire.
3. This program should result in a more efficient use of faculties, facilities, and equipment. Students should receive a more congruous and articulated program of study as a result of faculty information exchanges and agreements concerning course content for each different educational level. Instructional coordination should benefit students since they repeat fewer technical concepts at a subsequent level. Tech-Prep graduates possess technical competencies through an increased emphasis on applied academics. Tech-Prep graduates should attain higher ordered technical competencies as a result of an increased emphasis on academic instruction.
4. This plan may lead students to pursue a baccalaureate degree. This is a population who otherwise might never seek one. Additionally, students should be provided with an educational process that minimizes or eliminates course content repetition.

Implementation and Curricula.

The Tech-Prep program should take a minimum of four years to be fully implemented. It could take up to seven years before effective evaluation may be made. The first year should be a planning year; however, toward the end of the first year initial guidance activities should commence. During this year, a group of upperclassmen should also be moved into the Tech-Prep program to form a "Pilot Group" that assists the consortium in program development and in the on-going evaluation activities.

The first year's activities should include all of the following:

1. Each facet of the Tech-Prep and articulation process should be identified for the following:

    a. Identification of appropriate secondary schools and their student populations for this articulation plan.
    b. Identification of the appropriate secondary school curricula for Tech-Prep and articulation. This identification process should be done in consultation with area business, industry, and trade associations.
    c. Identification of the specific courses at the TI and CU that offer the greatest opportunities for successful articulation by Tech-Prep students.
    d. Identification of counselors at all consortium institutions who will follow and guide Tech-Prep participants.
    e. Identification of faculty at all consortium institutions whose educational philosophies and practices support the philosophies and goals of this Tech-Prep program.
    f. Identification of training requirements for selected faculty and counselors to ensure a qualified and successful program.
    g. Identification of equipment needs for the consortium to implement the planned Tech-Prep and articulation process.
    h. Identification of local business and industry leaders who are willing to serve in an advisory position. Involved and dynamic individuals should be selected for each advisory committee.
    i. Identification of the Tech-Prep and articulation paths. For each consortium member, an appropriate articulation agreement should be developed.

2. A four-year plan should be developed that addresses key issues associated with Tech-Prep and articulation. The following are some specific first year plans to be developed:
    a. Advisory Committees. These committees should serve three useful and functional purposes: First, to assist in the proper selection of appropriate Tech-Prep articulation areas; Second, to garner support for the project and to serve as resource personnel to provide Tech-Prep graduates with jobs and; Third, to be a source of project effectiveness.
    b. Participants. Select and develop the appropriate methodology for identifying pilot project participants for the first school year.
    c. Counselor Inservice. Plan for the inservice training for counselors involved with Tech-Prep and articulation at all consortium member institutions.
    d. Teacher Inservice. Plan for the inservice training for teachers involved with Tech-Prep and articulation for all consortium members.

e. First Year Support Activities. Plan for the necessary support activities for the first school year pilot project such as transportation, lunch, and communication with the students home school.

f. Eighth Grade Guidance. Plan and implement the necessary Tech-Prep guidance program for current eighth grade students. These students should be the first true Tech-Prep group.

g. "Pilot Group" Guidance. Plan and implement the necessary Tech-Prep guidance program for selected current ninth, tenth, and eleventh grade students.

3. Training is a vital aspect of Tech-Prep programs. Once training needs are identified, a specific training plan is to be developed for each of the following:

a. Classroom teachers. Teachers from each articulated Tech-Prep area should meet to determine the course content in each curriculum area. Once the competencies for each level of a technology are determined, each institution's sphere of responsibility is agreed upon. Each teacher's training requirements should be determined by personal interview. From determined training needs, appropriate inservice training should be developed and implemented.

b. Counselors. For each participating institution of the consortium, at least one counselor should be selected to participate in the Tech-Prep and articulation process. State, parish, and institutional requirements for awarding diplomas, certificates, or degrees within the context of the Tech-Prep and articulation program should be examined. Once these requirements have been determined, inservice workshops should be conducted for these counselors. During these workshops, each Tech-Prep path should be outlined for counselors detailing the required academic and technical courses for graduation and articulation to the next educational level.

c. Principals. Principals of all middle and secondary schools should be invited to all counselor and teacher workshops. Experts agree that all affected principals of a Tech-Prep system must share in the philosophy, scope and content of the Tech-Prep system. Success of the program could be jeopardized if principals are not included in the change process.

4. Once the Tech-Prep paths, specific schools, students, and staff training needs have been identified, a pilot program should be designed for implementation for the second, third, and fourth years.

5. After the Tech-Prep Pilot Project is designed, an inventory of existing equipment should be prepared. From the inventory list, an equipment needs and specification

list must be developed. Once the equipment is received, appropriate faculty members should be offered needed and related available training in preparation for implementation of this project during the first year.

6. A general plan for the next three years should be developed during the first year. Each technology area must be addressed by developing a curriculum plan for each. Such curriculum should include mathematics, science, communications, and the technical courses. Sample curricula are found on Charts IX thru XII, pages 53 and 54. A complete articulation plan for each subject in each path must be developed. The following is an example of a plan for the curricula outlined in Charts IX thru XII.

a. Mathematics.

Secondary
During the planning year, the Board of Elementary and Secondary Education's (BESE) approved Applied Mathematics course should be implemented for Tech-Prep participants. Pending BESE approval, Applied Mathematics II should then be added to the curriculum. These two courses combined should compare to current Algebra I.

Post-Secondary
All Tech-Prep two-year certificate students should be offered college algebra, and college geometry and applied trigonometry.All Tech-Prep two-year associate degree students should take college algebra for their first mathematics course. CAD/Drafting and Electricity/Electronics Tech-Prep students should then take college geometry and applied trigonometry. Business Occupations-Secretarial Science two-year associate students should then take a business-oriented course such as decision mathematics for their second college level mathematics course.

b. Science

Secondary
For the Tech-Prep students electing the CAD/Drafting or the Electricity/ Electronics paths, the secondary science courses should consist of Physical Science, and Principles of Technology I and II. The Allied Health Tech-Prep science courses should consist of Physical Science, Biology I and Biology II, and Chemistry. The Business Occupations Tech-Prep students should take Physical Science, Principles of Technology I, and either Biology I or Principles of Technology II.

Model Tech-Prep
(Secondary Curriculum)

CAD/Drafing Path

	9th Grade	10th Grade	11th Grade	12th Grade
Math	Applied Math	Applied Math II	Algebra II	Formal Geometry
Science	Physical Science	Principles of Technology I	Principles of Technology II (optional)	
English	English I, II, III, and IV (Applied Communication)			
Technology	Introduction to Technology	General Tech. Education	Basic Tech. Drafting	Architectural Drafting

Chart IX

Electrical/ Electronics Path

	9th Grade	10th Grade	11th Grade	12th Grade
Math	Applied Math	Applied Math II	Algebra II	Formal Geometry
Science	Physical Science	Principles of Technology I	Principles of Technology II (optional)	
English	English I, II, III, and IV (Applied Communication)			
Technology	Introduction to Technology	General Tech. Education	Electricity I	AP @ TI

Chart X

Model Tech-Prep
(Secondary Curriculum)

Business Path

	9th Grade	10th Grade	11th Grade	12th Grade
Math	Applied Math	Applied Math II	Algebra II	
Science	Physical Science	Principles of Technology I	Principles of Technology II	
English	English I, II, III, and Business English			
Technology	Introduction to Technology	Keyboarding/ Typewriting I	Computer Application I & II and Accounting I or Word Processing	Accounting I or Computer Accounting and Word Processing

Chart XI

Applied Health Path

	9th Grade	10th Grade	11th Grade	12th Grade
Math	Applied Math	Applied Math II	Algebra II	
Science	Physical Science	Biology I	Principles of Technology I	Principles of Technology II or Biology II
English	English I, II, III, and IV (Applied Communication)			
Technology	Introduction to Technology	Nursing Assistant	Biology II	Psychology and Sociology

Chart XII

Charts IX, X, XI, XII are Modeled from *TPAD*, page 80.

Post-Secondary
CAD/Drafting and Electricity/Electronics Tech-Prep two year associate degree students should take general college chemistry, general physics, and general physics laboratory. Two-year Emergency Health Service students should take general chemistry, principles of biology, principles of biology laboratory, survey of anatomy and physiology. No additional science requirements for the Tech-Prep two-year Associate Degree Secretarial Science students are required.

c. Communications.

Secondary
All Tech-Prep students should take English I, II, III, IV. During the planning years, steps should be taken to develop an Applied Communications curricula.

Post-Secondary
At the post-secondary level, all certificate students should be offered courses in two freshman English courses. All two-year associate degree Tech-Prep students must take two freshman English courses. Two-year Associate Degree Secretarial Science, CAD/Drafting, and Electricity/Electronics students should take a fundamentals of speech course. Secretarial Science and Emergency Health Science students should take an appropriate computer science course.

d. Technology.

Secondary.
General.

All ninth grade Tech-Prep students should take an Introduction to Technology course.

CAD/drafting and Electricity/electronics.

All tenth grade CAD/drafting and Electricity/electronics students should take General Technology Education.
CAD/drafting students should take Basic Technical Drafting in the eleventh grade. Twelfth grade CAD/drafting students should take Architectural Drafting. Eleventh grade Electricity/electronics students should take Electricity I, basic electricity. Twelfth grade students who complete the advanced placement tests should be given the opportunity to participate and receive advance placement in electronics (Basic Core) program at the TI. Other students should be given the opportunity to enhance the electrical skills in preparation for matriculation to either the TI or CU.

Business.

Tenth grade students should take Keyboarding/Typewriting I. Eleventh grade students should take Computer Applications I & II and Accounting I or Word Processing. Twelfth grade students should take either Accounting I or Computer Accounting and Word Processing.

Allied Health.

Tenth grade Allied Health students should take the Nursing Assistant course. Eleventh grade students should take Biology II (Anatomy). Twelfth grade students should take Psychology and Sociology.

Post-Secondary.

General.

Students should articulate to either the TI or CU. Articulation agreements between the TI and CU should provide the means for students to transfer their acquired knowledges and skills to a similar program at the other institution.

CAD/drafting.

At the TI, students should enroll in the Drafting and Design Technology curriculum. These Tech-Prep secondary school graduates may receive advanced placement in Phase I of the curriculum. At the CU, these students should enroll in the Industrial Technology associate degree program. Students may receive advanced placement for the Introduction to Technology and Introduction to Engineering Drawing courses.

Electricity/electronics.

At the TI, students should enroll in Computer Technology, Communication Electronics, Industrial Electronics, Instrumentation, or Consumer Electronics Technician curriculum. These Tech-Prep secondary school graduates may receive advanced placement in Electronics (Basic Core). At the CU, students should enroll in the Industrial Technology associate degree program. Students may receive advanced placement for the Introduction to Technology and Introduction to Electronics course.

Business.

Students should articulate to either the TI or the CU. At the TI, they should enroll in the Business Department. All students should major in one of the three areas--Account Clerk, Secretary, or Word Processor Operator. These Tech-Prep secondary school graduates may receive advanced placement in typewriting, word processing, and shorthand. At the CU, students will enroll in the Department of Administrative Office Systems, Associate of Science, Secretary Two Year Program. Students may receive advanced placement status for Introductory Typewriting and Shorthand Theory and Dictation courses.

Allied Health.

At the TI, students should enroll in the Practical Nursing curriculum. Students may receive advanced placement for anatomy and routine patient handling techniques. Students should enroll in the CU's Emergency Health Science program. Students may receive advanced placement status for Introductory Biology and Psychology courses.

Administrative Organization.

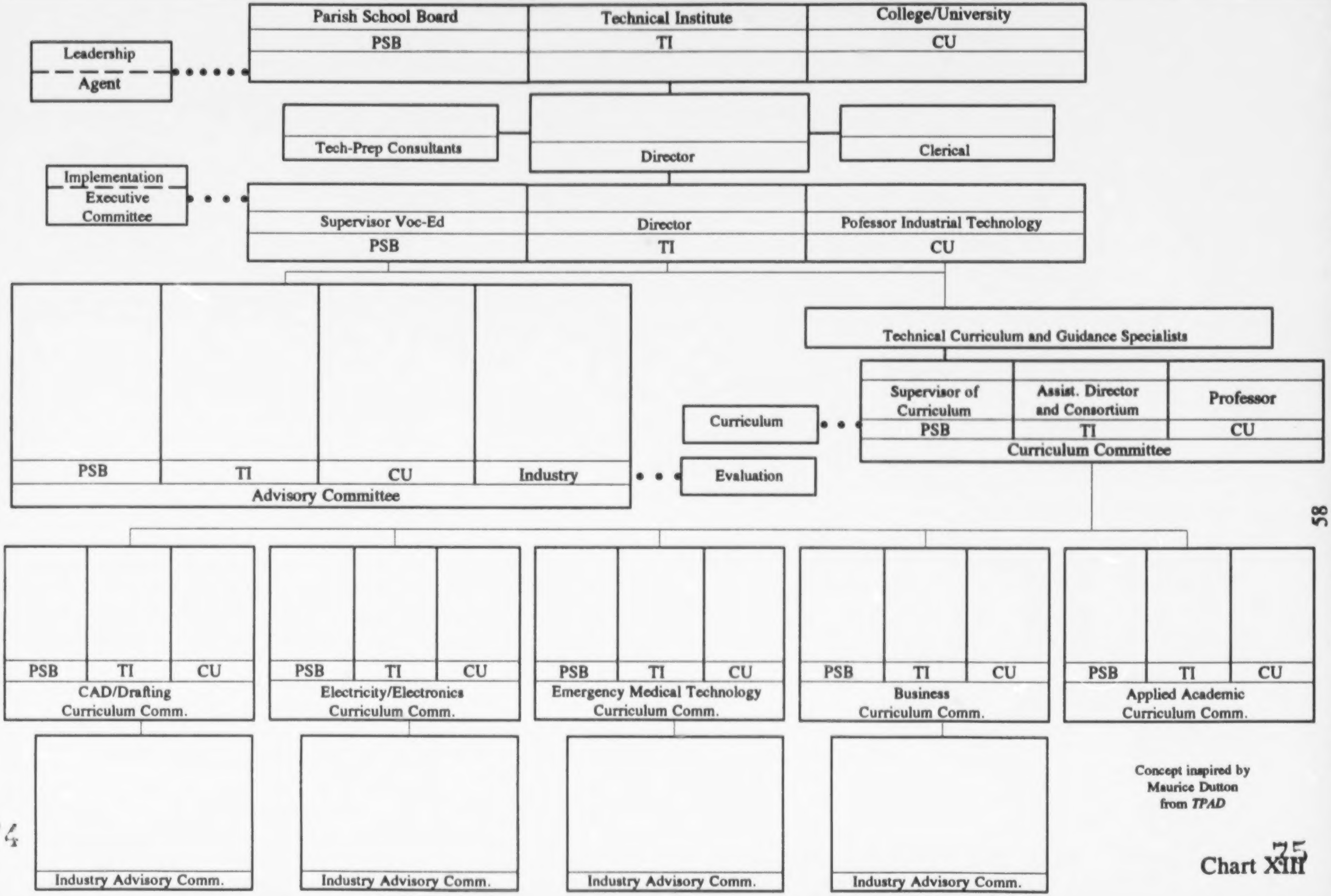
Chart XIII, page 58, displays four separate segments of Leadership, Implementation, Curriculum, and Evaluation by the various Tech-Prep consortium entities (PSB, TI, CU). Ultimate approval of policy decisions and the signing of articulation agreements is relegated to the Leadership level. All information to and from the Leadership level should be funnelled through the Project Director. The Project Director should be an ex officio member of all committees associated with the entire Tech-Prep program. The Tech-Prep consultants and clerical staff should report directly to him/her.

The implementation level (Executive Committee) should consist of the PSB Supervisor for Vocational Education, the Technical Institute Director, the Project Director, and a professor or department head of the CU. The Executive Committee coordinates the efforts of the Evaluation and the Curriculum Committees and each of these individuals are ex officio members of these two committees.

For each technology area, a curriculum subcommittee should be formed. Each advisory area subcommittee should consist of at least one faculty member from each consortium-member institution and a representative from the Curriculum Committee. Each subcommittee should have an Industry Advisory Committee of at least five members. An Applied Academic Curriculum subcommittee should be formed. This committee should have faculty representatives from mathematics, English and science. Each Technology area Subcommittee Chairman should serve as a liaison between that committee and the Applied Academic Curriculum subcommittee.

Model Tech-Prep Administrative Organization

Parish School System-----Technical Institute-----College/University


Parish School Board
PSB
Technical Institute
TI
College/University
CU
Leadership
Agent
Tech-Prep Consultants
Director
Clerical
Implementation
Executive Committee
Supervisor Voc-Ed
PSB
Director
TI
Pofessor Industrial Technology
CU
Technical Curriculum and Guidance Specialists
Supervisor of Curriculum
PSB
Assist. Director and Consortium
TI
Professor
CU
Curriculum Committee
Curriculum
Evaluation
PSB
TI
CU
Industry
Advisory Committee
PSB
TI
CU
CAD/Drafting Curriculum Comm.
PSB
TI
CU
Electricity/Electronics Curriculum Comm.
PSB
TI
CU
Emergency Medical Technology Curriculum Comm.
PSB
TI
CU
Business Curriculum Comm.
PSB
TI
CU
Applied Academic Curriculum Comm.
Industry Advisory Comm.
Industry Advisory Comm.
Industry Advisory Comm.
Industry Advisory Comm.

Concept inspired by
Maurice Dutton
from *TPAD*

Chart XIII

Inservice Training.

Before each teacher's training requirement can be determined, the competencies for each technology area must be determined and each institution's sphere of responsibility must be agreed upon. Each teacher's additional training requirements should be determined via personal interview. From these training requirements, appropriate inservice training should be facilitated. This training should be conducted by contracted consultants. Some envisioned training might consist of:

A. Inservice technical training for technical instructors,
B. Inservice training in classroom Tech-Prep methodology for all program teachers, and
C. Inservice training for communication, mathematics, and science instructors to assist in the development of lesson plans that convey applied technology concepts.

From each consortium institution, a minimum of one counselor should be selected to participate in the articulation process. Important considerations to be given in the planning and development phase are the State, Parish, and institutional graduation requirements for all awarded diplomas, certificates, or degrees. Once these requirements are determined, in-service workshops should be conducted for counselors. During theses workshops, each articulation area should be outlined for all counselors detailing goals, related career paths, employment potentials, required academics, and elective courses necessary for graduation, and possible articulation to the next level. Some envisioned training might consist of:

A. Counseling techniques common to applied technology curricula,
B. Teaching methods of applied technology specifically addressing the needs of "the neglected majority",
C. Counseling in applied technology programs for vocations,
D. Two-year certificate and degree program requirements for two-year technical certificates and associate degrees,
E. State prescribed course requirements for diplomas, certifications, or associate degrees at the secondary school, Technical Institute, or University, and
F. Advanced placement techniques and opportunities for applied technology students.

At each level, credentials, criteria, and procedures for advance placement in each certificate or degree program should be outlined. Techniques for acquiring supplementary knowledge and skills such as individualized reading programs, advanced course syllabi, advance course textbooks, and performance requirements should be readily available. Inducement for credit-by-examination and the opportunity to either gain greater in-depth skills or time-shortened graduation requirements create a flexible and adaptable curriculum. Coordination among consortium guidance and placement services ensures continual student assessment during the entire education process.

No student should be excluded from any course or activity solely because of age, race, creed, color, sex, religion, national origin, or qualified handicap. All students have equal rights to counseling and training. The needs of the handicapped and those of limited English proficiency should be addressed.

Guidance Activities.

A Tech-Prep program should begin with guidance in the spring for eighth grade students in the parish schools. Students and parents should be given an explanation of Tech-Prep paths leading to certificates and/or a an associate degree. At this time, each student should be given a curriculum outline listing necessary secondary school courses for each Tech-Prep path. During the advising sessions, possible associated careers for each path should be highlighted. Additionally, each student should be given an opportunity to visit the laboratories of each consortium institution. All Tech-Prep freshmen and sophomore students should follow a similar curriculum in communication, mathematics, science, social studies, and physical education. In the freshman year, students should participate in an Introduction to Technology course to become familiar with some rudimentary elements of the available paths. Near the end of the ninth grade, students may question counselors concerning careers, career ladders, post-secondary options, and academic requirements to achieve those ends. Tenth grade students should then select a course in a path related to some envisioned career. The counseling process should be repeated near the end of the tenth grade. Eleventh grade students should then select a second course in their chosen path. The counseling process should be repeated near the end of the eleventh grade. Senior Tech-Prep students should again choose another course in their selected path. An underlying tenet of Tech-Prep is that at any grade, students must be free to change paths or even leave the Tech-Prep program in favor of College-Prep or Vocational programs. As Tech-Prep students approach twelfth grade graduation, admission requirements, opportunities for advanced placement, and cross institutional enrollment options should be explained. Post-secondary bound students should be given specific graduation requirements for each certificate or degree, options to transfer, and the necessary curriculum substitutions and changes for articulation through the baccalaureate degree. Students should be advised of the advanced placement criteria and advance placement via credit-by-examination at the TI and CU. Students needing post-secondary assessment should be assisted by the guidance departments of the TI and/or CU.

Equipment.

Equipment must be acquired that adequately supports the Tech-Prep paths. Path determination should be made with the advice of the consortium's advisory committee. An inventory of existing laboratory equipment should be made. Only equipment that provides maximum applied learning and retention experiences should be considered. As a guide and a starting point, the suggested Principles of Technology list could be used. Implementing the

Principles of Technology courses stimulates interest in the applied science areas and is vital to the success of this Tech-Prep initiative. Educators agree that general education students (those in the two middle quartiles) do not relate scientific principles with the world of work. These courses provide students with a hands-on experience that stimulates, enthuses, and encourages an understanding of scientific principles. The success of these courses is attested to nationally and its implementation is vital to the success of Tech-Prep programs.

Placement and Marketing Activities.

There should be planned employment placement activities by the TI and the CU placement centers. Direct contact with and support by local industry and business is important. A brochure describing this consortium's Tech-Prep two-year certificate/associate degree program should be mailed to area industries inviting them to schedule interview times at the placement centers to interview prospective employees. Additionally, individual members of the various advisory committees should be enlisted for employment placement recommendations. An industry speaker network to associate Tech-Prep with industry should be developed. Direct industry involvement can make the world of work relevant.

A marketing and publicity program should be developed to promote the Tech-Prep concept throughout the community. Community and industry support are vital to the success of this program. Video and audio Public Service Announcements describing the features, benefits and opportunities for Tech-Prep students in the parish, the TI and the CU should be developed and aired in the market area. Timely news releases, highlighting institutional and student accomplishments, should be prepared. Emphasis should be placed on the credit transfer concepts and the life-long aspect of applied Technology and Education. The media should be notified of all open house and cross visitations. This should adequately publicize the Tech-Prep concept.

Non Tech-Prep Articulation Models

Articulation in education is nothing new. It has existed for sixty or more years. Many Louisiana institutions have made a concerted effort to justly award credit and not penalize students for where they acquired knowledge. These initiatives must not be abandoned. A state wide college/university course equivalency listing and numbering system would go a long way to foster articulation agreements. Florida and California have such a system. Catalogs clearly identify courses that meet a state equivalency and therefore transfer to other in-state institutions. A similar incipient with the technical institutes is long past due. The work load to develop and administer large numbers of credit examinations suggests that a better and more efficient method for granting college credit for technical institute courses be pursued. In the interim, exemplary programs such as the one developed by Sowela and MSU or the one suggested in this report need to be encouraged.

Tech-Prep Consortium

Consortia may be formed at any or all educational levels. Consortium may be formed between a high school and/or high school system, technical institute(s), or college(s)/ university(ies). There could be a three level consortium formed among high school(s) or high school systems(s), Technical Institute(s), and college(s)/university(ies). A four level consortium would involve high school(s) or high school system(s), technical institute(s), two-year community/junior college(s), and four year college(s)/university(ies). A two level consortium may be developed for any two levels of education. The formation of a secondary and post-secondary consortium is a necessary requisite to develop a Tech-Prep program and receive Carl D. Perkins Vocational and Applied Technology funds. The consortium arrangement is not necessary for a successful articulation process; however, Tech-Prep consortia usually have articulation agreements. Articulation is necessary in a Tech-Prep program to ensure that an educational consortium minimizes course content duplication at the various education levels. A sample consortium agreement is displayed in Appendix I.

Future Tech-Prep Programs in Louisiana

From the data collected, four programs exist in Louisiana that are Tech-Prep based or could become Tech-Prep. 1) Calcasieu, Sowela, and MSU; 2) Caddo Parish, SPTI, and BPCC; 3) Jefferson, Orleans, St. Tammany, SIT, DCC and UNO; 4) Lafayette and LRI. These consortia have initiated the articulation process and explored common technical areas. Administrative details and competency assessment procedures have undergone at least a year of testing. In the case of the DCC based program, extensive efforts to adapt Tech-Prep principles to the local needs positions this program in the Louisiana educational forefront. Two others, Caddo/SBTI/BPCC and Calcasieu/Sowela/MSU have the potential to develop a model Tech-Prep in a short period of time. These consortia have begun developing articulation guidelines for courses and administrative guidelines. Since these two groups have existing two level agreements, i.e. Sowela and MSU or Calcasieu and Sowela, the next logical step is to form a three level consortium to develop a Tech-Prep model that emanates with preparatory services in the eighth grade and terminates with a bachelor's degree. The fourth, Lafayette and LRI, has just begun developing their agreement. A third party needs to join with them to provide the associate and bachelor's degrees.

Sample Articulation Agreements.

Capstone.

Capstone agreements are considered the most desirable; however, they are the most difficult to execute since the curricula of the two-year institution is designed to prepare a graduate to enter into the work force. The degree must also transfer in its entirety to the four-year college/university giving the student a junior standing in a bachelor's program. Because all baccalaureate degrees require a considerable number of semester hours of humanities and these humanities must be taken sequentially, close collaboration and a liberal substitution of similar courses becomes a necessity. A capstone agreement is less common for a high school to a college or a high school to a technical institute. A sample capstone agreement is displayed in Appendix J.

Course by course.

Course by course agreements are more common and are easier to implement. The advantage of this type of agreement is that courses, not degrees, articulate. Therefore, if in the unlikely event that a two-year graduate decides to major in a non-technical baccalaureate program, some courses will automatically transfer. Course by course agreements are common for all levels. Three sample articulation agreements are found in Appendix J.

Issues in Articulation for Louisiana

The technical institutes are SACS accredited but under a different group, COEI. Each group, COC and EOCI, have different accrediting criteria. Traditionally, the mission, scope, and purpose has been very different for institutions accredited by each of these two groups. With increased emphasis on academic performance by the technical institutes and increased emphasis on applied technology by colleges and universities, the education chasm between the two has begun closing.

Technology fundamentals must be taught by all institutions. Technical institutes emphasize the practical, hands-on and applied while the colleges/universities approach education in a more theoretical, conceptual, and general fashion. College level technology programs are a unique blend of the practical and hands-on bolstered by a generous amount of theory and generalization. These technical programs offer the greatest opportunities for articulation. Technical Institutes perceive a barrier to articulation with colleges/universities. Traditionally, colleges/universities have not been able to accept transfer course credits since these two entities are not accredited by the same accreditation division. This is a false barrier since colleges/universities almost universally permit credit by examination. These examinations must be developed and administered by the college/university faculty. To have successful technical institute to college/university credit examinations and transfer programs, close cooperation is a must between these faculties.

To further ensure success of this process, course objectives, syllabi, recommended reading lists, and textbooks should be available for reference in the technical institute's library. This will permit technical institute students, who anticipate transferring to a college/university, an opportunity to gain more in-depth theory prior to taking the credit examination.

Collected Booklets, Curriculum, and Materials

Materials collected during this research project have been placed in USL's Dupré Library "Louisiana Room" to provide an equal and ready access by consortia desiring this information. Contact the Dupré Library, (318) 261-6031, USL campus, to gain access to these materials.

Interviewee List

The following are the names of the persons out of Louisiana interviewed in the collection of data:

Dr. Maurice Dutton, Executive Director, C.O.R.D., Waco, Texas
Dr. James Hoerner, Associate Professor, Virgina Polytechnic University, Blacksburg, Virgina
Ms. Diane Honnycutt, Vice President of Student Development, Richmond County Community College, Hamlet, North Carolina
Dr. Gunter Myran, President, Washtenaw Community College, Ann Arbor, Michigan
Mr. Gregory Schumm, Director of Two-Year Technical Programs, Wright State University, Celina, Ohio
Ms. Myrtel Stogner, Director, North Carolina Tech Prep Leadership Developement Center, Hamlet, North Carolina
Dr. John Sutton, Head, Industrial Sciences, Colorado State University, Fort Collins, Colorado
Ms. Diana Walter, Executive Director, P.A.C.E, Pendleton, South Carolina

The following are the names of persons from Louisiana interviewed in the collection of data:

Ms. Karen Akin, Director of Admissions, LTU
Dr. Walker Allen, Director Enrollment Services, Nicholls
Mr. Ted Ardoin, Director, LRI
Ms. Lillie Bell, Assistant Registrar, NSU
Mr. Kenneth Bridges, Region 8 Director
Dr. Lamore Carter, Vice President, GSU
Dr. Robert Cavanaugh, Dean, LSU-A
Dr. Hugh Craft, Dean, SBPCC
Mr. Daniel Degeyter, Student Personnel Services Director, ARI
Ms. Marilyn DeGrasse, Assistant Vocational Education Supervisor, Orleans Parish School Board
Mr. Colin Fake, Assistant Director, Sowela
Ms. Linda Finley, Registrar, McNeese
Dr. Mary FitzGerald, Associate Dean, UNO
Ms. Gayle Flowers, Teacher/Coordinator, Woodlawn High School
Mr. George Foster, Region 2 Director
Dr. B. E. Hankins, Vice President, McNeese
Ms. Patricia Hensley, Registrar, BPCC
Mr. Hershel Horton, Region 7 Director
Mr. Ron Johnson, Vocational Supervisor, Calcasieu Parish
Mr. Travis Lavigne, Region 3 Director
Mr. Stanley Leger, Director, Sowela
Mr. Burnell Lejeune, Supervisor of Vocational Education, Lafayette Parish
Ms. Diane Merrill, Admissions, LSU-A
Mr. Sam Merritt, Director, SBTI
Mr. Cliff Milstead, Supervisor Secondary & Vocational Programs, Jackson Parish School Board
Mr. Anthony Molina, Assistant Dean, DCC
Dr. Paul Riggs, Registrar, SLU
Dr. Donald Rogers, Dean, LSU-E
Dr. Katherine Sippola, Assistant Dean, DCC
Ms. Irene Thomas, Registrar, GSU
Ms. Arlene Tucker, Registrar, LSU-E
Dr. Randall Webb, Director of Academic Affairs, NSU
Ms. Elaine White, Teacher, Woodlawn High School
Dr. Stan Wilkins, Vice Chancellor, BPCC
Dr. Ronald Zaccari, Vice President, SLU

Appendix A

This is a brief synopsis of "Tech Prep Associate Degree: A Win/Win Experience" by Dan Hull and Dale Parnell.

This book does exactly what it starts out to do in the preface. The authors state that they wanted to write a how-to-do-it book for people who are interested in initiating a Tech-Prep program and they do just that. The book also provides useful information for employers, parents, students and economic development organizations.

The first five chapters contain rationale, methodology, structure, process, and advice for forming and operating a TPAD consortium. In the next two chapters the authors present examples of TPAD programs developed across the country by different types of people, in different environments, and for different purposes. Each example is presented as a separate entity, with time to reflect on its unique purpose, organization, strategies, and benefits.

Chapters eight and nine address the issues of recruiting and retaining TPAD students. Chapter eight includes examples of enhancements that can be adapted to increase TPAD acceptance by students, parents, educators, employers, and community leaders. Chapter nine provides advice and examples for significant employer involvement in and support for TPAD programs.

The last chapter of the book deals with the feelings and appraisals of people in a key role who have each experienced a TPAD consortium. If you are a superintendent, college president, teacher, counselor, employer, or administrator, search this chapter to find out how a colleague feels who's "gone through the process."

The book presents a TPAD model in terms of educational philosophy, curricula, strategies, methodology, and anticipated outcomes. Like all models, it probably doesn't fit anywhere in its entirety; but if it is worthy, it should form the basis for many local adaptations. I feel that the structure is a sound one. I believe that with the correct mixture of experience, commitment, sensitivity, creativity, and hard work, TPAD can be a winner!

Among the contributors are:

DR. JAMES (GENE) BOTTOMS, has thirty years experience in education as a teacher, principal, counselor, administrator, scholar and researcher at the local, state, and national levels. Dr. Bottoms' current position as Director of the Southern Regional Education Board has given him the opportunity to assist fourteen southern states to improve basic competencies in mathematics, science, and communication.

DR. MAURICE DUTTON is currently a Senior Research Associate for the Center for Occupational Research and Development. Among his other projects at CORD, Dr. Dutton is responsible for consortium relations in the development of applied-academic curricula, and is Project Director for the 2+2 Tech Prep Articulation Workshops.

MR. DANIEL M. HULL, a Registered Professional Engineer, spent thirteen years working with lasers/optics in the defense, aerospace, and energy fields with companies such as Westinghouse, Sandia Corporation and Lockheed. Mr. Hull then spent seventeen years designing, developing, and conducting technical training programs for schools, industry and government labs. He directed the development of instructional curricula and over 4000 pages of student/teacher materials in laser/electro-optics, which are currently being used in forty community and technical colleges to train laser/electro-optics technicians. Since 1979, Dan Hull has served as the President of the Center for Occupational Research and Development, a private, has served as the President of the Center for Occupational Research and Development, a private, nonprofit organization. He has provided assistance to the education departments of many states, and to technical institutes and colleges in the implementation of advanced-technology curricula.

DR. DOUGLAS JAMES is currently the Superintendent of Richmond County Schools in Hamlet, North Carolina. For the past seventeen years, Dr. James has served in five school districts in North Carolina as a teacher of business education, principal, assistant superintendent, and superintendent in two different school districts. Among his numerous awards are included The Governor's Award for distinguished meritorious service to the people of the State of North Carolina, The United States Department of Education Award for his outstanding contribution to improving the quality of educational opportunities for disadvantaged and migrant children, and The 1988 Governor's Program of Excellence in Education for the development and implementation of "Tech-Prep".

MR. STEVE MALBROUGH is currently the Dean of Instructional Support Services at Texas State Technical Institute/Waco. Among many of his projects, Mr. Malbrough is responsible for the development, implementation, and ongoing process involved in the Transformations program, a technical retraining program for adults.

MR. CARROLL MARSALIS is the Project Manager for High Technology Work Force Retraining Demonstration at the Tennessee Valley Authority. A great deal of Mr. Marsales' efforts have been directed toward training adult workers to be placed back into the work force.

DR. LARRY McCLURE is currently the Director of the Education and Work Program at Northwest Regional Educational Laboratory (NWREL) which serves the states of Alaska, Idaho, Montana, Oregon, and Washington.

DR. DALE PARNELL began his professional career as a secondary school teacher. He then served as vice principal, principal, superintendent of schools, Oregon Superintendent of Public Instruction, President of San Joaquin Delta College in California, and Chancellor of the San Diego Community College System. Dr. Parnell has been President of the American Association of Community and Junior Colleges since 1981. As chief executive officer of this association, he has represented 1219 institutions enrolling 11.4 million persons in credit and noncredit programs. In 1985, Dr. Parnell published The Neglected Majority which introduced the 2+2 Tech Prep/Associate Degree program. Since then, he has been recognized as a crusader for Tech Prep/Associate Degree as he has traveled across the country encouraging high schools and community colleges to become involved.

DR. LENO PEDROTTI has served as the Senior Vice President for the Center for Occupational Research and Development since 1982.

MR. ALAN SOSBE, Research Associate at the Center for Occupational Research and Development, has managed, developed, and implemented dislocated worker retraining programs at four different sites around the country.

MS. DIANA WALTER, Executive Director of the Partnership for Academic and Career Education (PACE), has facilitated the development of TPAD programs in Anderson, Oconee, and Pickens counties of South Carolina for the past two years. Previous to her work at PACE, Ms. Walter held positions in community- college teaching, administration, and counseling. Her diverse background includes experience in program development, faculty/staff development, student assessment, advising, marketing and grants development.

Appendix B

The following are for reference:

Ms. Diana Walter
Executive Director
Partnership for Academic and Career Education (PACE)
P. O. Box 587
Pendleton, SC 29670
(803) 646-8361
Attributes:
1. Flexibility - model- started rigid became flexible.
2. Applied Academics
3. Guidance Counselor @ 7th grade - exploration

Ms. Mertyl Stogner
North Carolina Tech-Leadership Development Center
P. O. Box 1189
Hamlet, NC 28345
(919) 582-7187
Attributes:
1. Career Cluster Support
2. Using Regular Academics

Mr. Fred Monico
Director Vocational-Education
Division of Applied Technology and Career Development
635 Ridge Ave.
Pittsburgh, PA 15212
(412) 323-3160
Attributes:
1. Do away with General Education Track
2. Now only Tech-Prep-College-Prep Tracks.

Mr. Cecil Phillips
Assistant Division Chairman
Engineering and Technical
Thomas Nelson Community College
P. O. Box 9407
Hampton, VA 23670
(804) 825-2901
Attributes:
1. Offer both a Skill Enhanced/Master Technician program and Time-Shortened program.
2. More applied Technologies.

Dr. Donald Johnston
Associate Vice President
Voc-Tech
Portland Community College
P. O. Box 19000
Portland, Oregon 97219(503) 244-6111 Ext. 2573

1. Outstanding Counselor & Guidance
2. Outstanding A.V. program.

Appendix C

Tech-Prep Clearing House Visit

On Thursday, May 9, 1991, Jimmy Comeaux and Joe Pons visited the Tech-Prep Clearing House located in Pendleton, South Carolina. The Clearing House is located in a building owned by Tri-County Technical College. The Clearing House was in the process of being moved to the National Center for Research in Vocational Education in Springfield, Illinois. However, we were able to copy some very useful documents. The building which housed the Clearing House is under the direction of Mr. Steve Walter, husband of Mrs. Diana Walter, Executive Director of P.A.C.E. (Partnership for Academic and Career Education). PACE is a three county (Anderson, Oconee, and Pichens) consortium formed in October, 1987 to administer Tech-Prep programs. Steve Walter is an administrator with the Tri-County Technical College in Pendleton, South Carolina, a few miles from Clemson, S. C. the home of Clemson University.

Most of the Clearing House's records, films, videos and filmstrips and printed matter were packed and boxed, ready to be moved to its new location in Springfield, Illinois.

However, we were able to browse through some of the material and copied some information pertaining to Tech-Prep. We will be able to use this information in developing Tech-Prep programs. Information associated with at-risk students and Tech-Prep was found. When we met with Dr. Steve Walter, Dean of Academic Support Services, he explained some administrative organizational structure of Tri-County Technical College and PACE. We later met with Rick Murphy Tri-County's Technical College's Director of Cooperative Education and PACE's Counselor Liaison. Rick serves as head of a counseling committee which advises PACE and Tech-Prep programs. Rick explained some of PACE's activities and made arrangements for our meeting to be held with Diana Walter on Friday. Rick was extremely friendly and he made us feel right at home. He was genuinely interested in making sure that we had a room to stay in and how to get around Greenville. Rick made all of the arrangements for our seminar with Diana Walter on Friday.

On Friday, May 10, 1991, Pendleton, South Carolina. Joe Pons and James Comeaux attended a seminar headed by Diana Walter. Also attending were Rick Murphy of PACE, in Pendleton, S.C. Dr. Les Thompson, Supervisor of Vocational Education, Appalachia Coordinating Counsel and Paul Mackay, Associate Dean, East Central College, Union, Missouri.

Diana Walter began her presentation at 9:00 AM and did not stop until 4:30 PM with the exception of one hour we had for lunch. Even throughout the lunch period which we had as a group, she did most of the talking. Mrs. Walter has to be the most knowledgeable person in the world concerning Tech-Prep information.

The PACE Tech-Prep initiated for Anderson, Oconee, and Pickens counties has been named the top Tech-Prep Program in the nation by the U.S. Department of Education. In addition, the program is one of the three recipients of the American Association of Community and Junior Colleges inaugural Tech/Prep/Associate Degree Partnership Award. According to Diana Walter, "These awards really recognize the excellent work that was done before anyone had ever heard very much about Tech Prep." Diana attributes the honor to the quality of teachers in the Tech-Prep program. Dr. Dale Parnell, author of the book The Neglected Majority, remarked when he made the presentation, that PACE now has the privilege to lead other school systems in the county in developing Tech- Prep programs. Roy Herrin, chairman of the Pace Coordinating Board, calls the Tech-Prep concept "The most exciting and innovative educational concept to come along in decades."

Diana calls the PACE Tech-Prep program an extremely flexible organization where a Community College and three county school systems, Oconee, Pickens, and Anderson joined to develop an educational program. This program which impacts the B and C group of high school students of, the silent majority. Diana said that in analyzing todays schools she realized what was wrong with education. She said "it's not the kids, it's not the teachers, it's the curriculum." Also she has come to the realization that everyone has to go to work someday. This is a complete educational program which provides a regular college bound program and also administers programs for the at-risk students.

One important and emphasized feature of the PACE model is its partnership with industry. The PACE staff, in cooperation with industry and college representatives, have developed applied curriculum guides in math, English, science, and an Introduction to Technology. These guides provide for skill application with real problems from local industries. Copies all have been obtained and screened for future reference.

Eighty local and business professionals participate in a speakers' bureau. They volunteer their time to share information with students on careers, requirements of their companies for hiring prospective employees, importance of finishing high school, and the value of earning a two-year degree.

Business leaders also participate in a co-op apprenticeship and tuition-assistance opportunities program which provide part time employment for high school and Technical College students.

There are seven school districts from three counties in the consortium. Each school district has a somewhat different program according to their needs and ability of funding. Some districts have revised the English program, others have revised the mathematics program, still others have modified the science program. Most have implemented the Principles of Technology Curriculum I and II. One district eliminated the general education program and now has only a College Prep and a Tech-Prep program. Most districts have published curricula guides for the high schools, some have guides for the middle school. Tech-Prep is extremely cost efficient. The main cost is for release time for teachers to write curriculum guides and to attend Tech-Prep inservice training sessions. Networking across districts with the leadership of a college or university enables the sharing of the cost for professional development.

Some of the problems that PACE has had to face in implementing Tech-Prep are: 1) Industrial Arts and Vocational Teachers fought the implementation, they were not sure of just how they would fit into this new program. 2) School districts with Career Centers felt they were duplicating programs. 3) Some Industrial Arts Teachers were threatened with having to retrain to teach technology education. 4) The decision to make these expenditures was sometimes slow in coming. 5) The first developed model called for starting the program in 11th grade-this proved to be a poor model and grade nine became the starting grade. 6) Like any federally supported educational program, there was opposition by some teachers because the program was new and the fact that it was federally funded. 7) They tried to follow book model; it was too clumsy.

Appendix D

May 23, 1991

Richmond Senior High School
Richmond, North Carolina

Upon arriving on the RSHS campus Mr. Joe Pons and Mr. Thomas Landry received a red carpet reception by the Sword Honor Guard of the R.O.T.C. program. These students were extremely proud and honored to receive these two and some 30 plus other educators, administrators, counselors and business leaders from 8 other states. We were escorted by a member of this honor society to the library where we were greeted by members from the RSHS, county school district and the local community college. After registration and coffee, we were formally welcomed by Mrs. Myrtle Stogner, Director of the North Carolina Tech Prep Leadership Development Center.

After introducing all dignitaries from the area schools, all guests were introduced by state, county, or local school district. Brief comments were made from the Chamber of Commerce, Principal of RSHS, and the Vice President from the Richmond Community College. Mrs. Stogner reviewed the day's schedule with us and then introduced the Superintendent of Richmond County Schools, Dr. Doug James. Dr. James was extremely proud of the work done by all personnel in the Tech Prep program and mentioned the recent award of a "Blue Ribbon of Excellence" from the Department of Education in Washington D.C. He highlighted by commenting that their school has had over 2,000 visitors during the past two school years to show others their exemplary program.

Dr. James highlighted the Tech Prep program with overhead transparencies and a verbal presentation in reference to the importance and success of their program. The task of this program was to provide students the needed cognitive and psychomotor skills to meet the demands of the labor market. He emphasized that the job market demands new technologies and skills needed for today's work force. The program is an initiative to help the community upgrade those current skill levels to a level where there will be a balance between what is and what is needed. Dr. James emphasized that they have and will continue to drop obsolete courses and add new ones that are needed to upgrade the Tech Prep program. Some courses that have been dropped are traditional Industrial Arts such as electricity, drafting, graphics, machine shop, and auto mechanics. Other courses that have been dropped from the school curriculum are typing, accounting, general health occupations, and textiles. As these courses were dropped, they were replaced with courses such as: living technology, food science, industrial technology, principles of technology, electronics, computerized drafting, metals technology, keyboarding and word processing, technical health occupations, entrepreneurship, applied communications, auto technology, auto servicing and textile technology.

Numerous charts and diagrams were shown outlining data for enrollments, graduations, follow up surveys, and assessment surveys. After fours years of program operation, rather significant increases in the number of students going to post-secondary were shown. Significant increases of numbers of students tested in Algebra 1 were shown along with increases in SAT scores. Also of interest was the lowering of dropouts by 3%. Probably the most significant data result was that 100% of graduates intended to go to community, trade, and technical institutes or college. Today, over 74% of the graduates go on to post-secondary education. Why Tech-Prep? Because it is a "Win-Win" situation as Dr. James concluded in his presentation.

Mrs. Myrtle Stogner, in her comments, outlined the make-up of the North Carolina Tech-Prep Center and how the Richmond program works. An explanation of schools, funding, courses, articulation, credits, industry involvement, and philosophies of Tech-Prep were given. She explained that the program parallels that of the "College Prep." Tech-Prep basically is education and courses of study for technical careers. The focus, however, is for the "Middle Majority" of students. These are the students that traditionally have not been taken care of. This program, a blending of academics and technical education, is directed to raising the level of expectations for these students. The redirected courses, both academics and technical, have regular program goals and objectives and more importantly, the addition of applied techniques throughout the curriculum. She emphasized that these courses in the Tech-Prep program are NOT watered down. In fact, additional and more stringent expectations are placed on students. Does this work? Yes! She emphasized in her closing remarks that by emphasizing "head skills as well as hand skills, students will acquire success in the program and the student assessment shows this growth.

Dr. John Langley, Principal at Rockingham Junior High, covered how the Junior High Schools get involved in Tech Prep. He traced the assessment of students from grade 7 through grade 9 in Algebra and mathematics skills. Exploratory course offerings and computer skills begin in grade 7.

Mr. Ralph Robertson, Principal of Richmond Senior High School detailed his beliefs and experiences by stating that Tech-Prep must begin with top administrative support, orientation of all staff, and a comprehensive career guidance program. He showed overhead transparencies that highlighted time spent by students in biology, chemistry and physics from the U.S. as compared to China and U.S.S.R. These other countries doubled and tripled students' times spent in this science curriculum. He also shared an activity calendar for implementation of the Tech-Prep program. He emphasized that high school diplomas are no longer a ticket to a good paying job. Many jobs today and those of the future will demand employees who can solve technical problems and share ideas with others.

Prior to our lunch, our group was broken down into 4 groups of 8-10 people. We were then given a complete tour of RSHS. It was a very nice tour of the facilities.

Particular areas that are unique in this school are:

1. Tech-Prep started out using the existing classrooms, courses, and laboratories. Very little modification was done and still today there does not seem to be any great change in the classroom.

2. A gradual shift in curriculum trend has been towards applied academics and technology. In the areas of Business/Office Occupations, electronics and drafting, a gradual shift in using computers and "High Tech" was evident. Typing, drafting, and bookkeeping classes had anywhere from five (5) to twelve (12) computers in the labs. Students rotated between manual work and computer applications in these courses.

3. Besides the funds spent on computers, a recognizable amount of resources was spent in the electricity/electronics courses.

4. Probably the greatest amount of funds was spent in the courses Principles of Technology I and II. These courses utilized the equipment and materials in each of the courses by purchasing one complete package of P.T. materials. The classes were split into four groups and these groups rotated to different exercises on a regular schedule.

What we found in our visitation was a program that was started with limited funding and a positive attitude and support from upper level administrators. It has been successful because of the administrative support and the acceptance of staff from this entire community.

After lunch at the Richmond Pines Country Club, we again listened to Mrs. Myrtle Stogner talk about "How to Get There!" She spoke briefly about their business/industry leaders participating in "Dog and Pony" shows at schools. There community employers give talks and demonstrations to students and emphasize the need to take applied math, science and communication courses. These talks start at the 7th grade and continue through secondary education. Newspaper ads, T.V. spot commercials, AM and FM radio messages all emphasize registration and courses for students. This public relations program targets parents, students and the general public with emphasis on the "Total Education Picture." She further emphasized that "Students do what the teachers expect of them."

One real interesting marketing technique that Mrs. Stogner recommends to employers, in their community/employer assistance, is the passing out of pamphlets about educational opportunities with paychecks for local employees. Another marketing strategy is providing staff presentations at all local community organizational meetings.

Mrs. Stogner closed her session by passing out numerous forms and handouts that were used in their Tech Prep program. Mrs. Diane Honeycutt, Vice President for Student Development, Richmond Community College passed out brochures for the articulation efforts by their school.

May 24, 1991
Richmond Community College

Our second day in North Carolina was spent at Richmond Community College. During our visit and tour of the facilities we interviewed the department head of Business and Office Occupations, Vice-President for Instruction, Mr. David A. Adeimy and Ms. Diane Honeycutt, Vice-President for Student Development.

A discussion and a lengthy dialogue in reference to transfer credits was the major emphasis of our interview with these administrators. The basic technique of credit transfer from RCC was the capstone model. Most four-year institutions in North Carolina accepted this two-year associate degree, with a maximum transfer of 60 credits. A few of the four-year institutes would accept only a 30 hour core of transfer credits and these were the schools that offered Engineering Technology or Industrial Technology. This core was in basic communications, mathematics and services. Almost no technology course meets the requirements for transferring credits.

Some course-by-course transfer was done by Wingate College in the area of Richmond County. This private school, due to falling enrollments, has stepped up their course-by-course transfer of credits.

RCC, of course, has problems in the allied health field as does most others in their awarding of credits and advanced placement. No more than 30 hours are allowed to transfer even though a large number of their faculty is accredited. Some universities, probably Wingate College and other private institutions, will accept credits even though the faculty in these courses are non-accredited. As is in most institutions, a maximum of 90 credits can transfer, but only 60 credits will be accepted in a degree program. The acceptance of 300 level courses will not transfer as is the case elsewhere due to SACS regulations.

RCC does take part in the National Advanced Placement program. These numbers are quite low and apply to the College-Prep type of student. This AP program hardly applies to the Tech-Prep student or the neglected majority. The people interviewed were very proud that many of their two-year graduates have graduated from four-year institutions with high academic honors. This community college serves the community very well. The enrollment at RCC is approximately one thousand. Mr. Adeimy firmly believes that education can and must raise expectations of students and this will reveal anticipated outcomes where it is a "Win-Win" situation.

Appendix E
Tech-Prep/Articulation Grant

INFORMATION SURVEY FORM: ACADEMIC VICE-PRESIDENT OR DEAN
(TWO OR FOUR YEAR INSTITUTION)

DATE OF INTERVIEW: ____________________

PERSON INTERVIEWED: ____________________

TITLE OF PERSON INTERVIEWED: __________

1. Does your institution presently have any articulation agreements with any other institution(s)?
   yes () [Continue] no() [Go to D]
   a. If yes to number 1, which one(s)? ____________________
   b. If yes to number 1, would you describe your agreement as a course-by-course model, a capstone or some other model? course-by-course() capstone () other ()
   If other is checked, describe. ____________________
   c. If yes to number 1, would you be willing to share a copy of these agreements? yes() no() [Go to 2]
   d. If no to number 1, is your institution presently working toward any agreements? yes() [Continue] no () [Go to 2]
   e. If yes to d, which ones? ____________________

2. a. Please describe any process that enables high school students to receive credit at this university while still enrolled in high school? ____________________
   b. Are these policies described in the current catalog?
   yes() no() If yes, which pages? ____________________
   c. Are there any means for students transferring from other institutions other that colleges/universities to receive credit? yes () no ()
   If yes, describe. ____________________
   d. Are these policies described in the current catalog? If yes, which pages? __________

3. What are the perceived advantages that could be derived from articulation agreements with technical institutes? with community colleges/two-year colleges? high schools?

   Technical institutes: ____________________

   Two-year/Community colleges: ____________________

   High schools: ____________________

4. What are the perceived disadvantages that could be derived from articulation agreements?
   ____

5. How do you view articulation agreements with respect to faculty, accreditation, and curriculum development?
a. Faculty: ______________________________

b. Accreditation: ______________________________

c. Curriculum Development: ______________________________

6. What are the perceived obstacles to articulation with two-year associate degree granting institutions? ______________________________

7. What are the perceived obstacles to articulation with technical institutes?
____

8. Are there any other added comments relating to articulation which could be helpful to starting a uniform articulation agreement in this state? yes() no()

Comments: ______________________________

Tech-Prep/Articulation Grant

INFORMATION SURVEY FORM: REGISTRAR (FOUR-YEAR)

DATE OF INTERVIEW: ____________________

PERSON INTERVIEWED: ____________________

TITLE OF PERSON INTERVIEWED: ___________

1. Does your institution presently have any articulation agreements with any other institution(s)? yes () [Continue] no() [Go to D]
   a. If yes to number 1, which one(s)?____________________
   b. If yes to number 1, would you describe your agreement as a course-by-course model, a capstone model, or some other model?
   course-by-course() capstone () other () If other is checked, describe.______________
   If yes to number 1, would you be willing to share a copy of these agreements? yes() no() [Go to 2]
   d. If no to number 1, is your institution presently working toward any agreements? yes() [Continue] no () [Go to 2]
   e. If yes to d, which ones?____________________

2. a. Please describe your normal transcript evaluation process for undergraduate students from other four-year institutions.____________________
   b. Are these policies described in the current catalog? yes() no () If yes, which pages?__
   c. Please describe your normal transcript evaluation process for undergraduate transfer students from other two-year institutions.____________________
   d. Is there any difference in this process if the student was an AA, AS, major/graduated or an AAS, AAA major/graduate? yes() no () If yes, describe. ______________
   e. Will credits from technical institutes transfer? yes() no() If yes, describe. ________

3. Does this institution have any provisions for high school students to obtain credits while he/she is still enrolled in high school? yes() no() If yes, describe. ______________

4. What are the perceived advantages that could be derived from articulation agreements with four-year institutions? with technical institutes? with community colleges/two-year colleges? with high schools?
   Four-year:____________________

   Technical institutes:____________________

   Community colleges:____________________

   High schools:____________________

4. What are the perceived disadvantages that could be derived from articulation agreements? ______________________________

5. What are your views as to the reason(s) hindering articulation with other educational levels-above or below? ______________________________

6. Are there any other added comments relating to articulation which could be helpful to starting a uniform articulation agreement in this state? yes() no() Comments__________

Tech-Prep/Articulation Grant

INFORMATION SURVEY FORM: REGISTRAR (TWO-YEAR)

DATE OF INTERVIEW: ____________________

PERSON INTERVIEWED: ____________________

TITLE OF PERSON INTERVIEWED: __________

1. Does your institution presently have any articulation agreements with any other institution(s)? yes () [Continue] no() [Go to D]
   a. If yes to number 1, which one(s)? ______________________________
   b. If yes to number 1, would you describe your agreement as a course-by-course model, a capstone model, or some other model?
   course-by-course() capstone () other () If other is checked, describe. ______________
   If yes to number 1, would you be willing to share a copy of these agreements? yes() no() [Go to 2]
   d. If no to number 1, is your institution presently working toward any agreements? yes() [Continue] no () [Go to 2]
   e. If yes to d, which ones? ______________________________

2. a. Please describe your normal transcript evaluation process for undergraduate students from other four-year institutions. ______________________________
   b. Are these policies described in the current catalog? yes() no () If yes, which pages? __
   c. Please describe your normal transcript evaluation process for undergraduate transfer students from other two-year institutions. ______________________________
   d. Is there any difference in this process if the student was an AA, AS, major/graduated or an AAS, AAA major/graduate? yes() no () If yes, describe. ________________
   e. Will credits from technical institutes transfer? yes() no() If yes, describe. ________

3. Does this institution have any provisions for high school students to obtain credits while he/she is still enrolled in high school? yes() no() If yes, describe. ________________

4. What are the perceived advantages that could be derived from articulation agreements with four-year institutions? with technical institutes? with community colleges/two-year colleges? with high schools?
   Four-year: ______________________________

   Technical institutes: ______________________________

   Community colleges: ______________________________

   High schools: ______________________________

4. What are the perceived disadvantages that could be derived from articulation agreements?
____

5. What are your views as to the reason(s) hindering articulation with other educational levels-above or below? ____

6. Are there any other added comments relating to articulation which could be helpful to starting a uniform articulation agreement in this state? yes() no() Comments__________

Tech-Prep/Articulation Grant

INFORMATION SURVEY FORM: DIRECTOR

DATE OF INTERVIEW: ____________________

PERSON INTERVIEWED: ____________________

TITLE OF PERSON INTERVIEWED: __________

1. Does your institution presently have any articulation agreements with any other institution(s)? yes () [Continue] no() [Go to D]
   a. If yes to number 1, which one(s)? ____
   b. If yes to number 1, would you describe your agreement as a course-by-course model, a capstone model, or some other model?
   course-by-course() capstone () other () If other is checked, describe.______________
   If yes to number 1, would you be willing to share a copy of these agreements?
   yes() no() [Go to 2]
   d. If no to number 1, is your institution presently working toward any agreements?
   yes() [Continue] no () [Go to 2]
   e. If yes to d, which ones?____

2. a. Please describe any process that enables high school graduates to receive credit at this technical institute. ____
   b. Are these policies described in the current catalog/bulletin/handbook?
   yes() no() If yes, which pages?__________________
   c. Are there any means or provisions for advanced placement or credit transfer to any other post-secondary institutions i.e. community/two-year or four-year colleges/universities? yes () no () If yes, describe. ______________________
   d. Are these policies described in the current catalog/bulletin/handbook? yes() no ()
   If yes, which pages? __________
3. What are the perceived advantages that could be derived from articulation agreements with four-year institutions? with technical institutes? with community colleges/two-year colleges? with high schools?
   Four-year:____

   Technical institutes:____

   Community colleges:____

   High schools:____

(Page 2)

4. What are the perceived disadvantages that could be derived from articulation agreements?
____

5. What are your views as to the reason(s) hindering articulation with other educational levels-above or below? ____________________________________

6. Are there any other added comments relating to articulation which could be helpful to starting a uniform articulation agreement in this state? yes() no() Comments__________

Tech-Prep/Articulation Grant

INFORMATION SURVEY FORM: PRINCIPAL

DATE OF INTERVIEW: ____________________

PERSON INTERVIEWED: ____________________

TITLE OF PERSON INTERVIEWED: __________

1. Does your institution presently have any articulation agreements with any other institution(s)? yes () [Continue] no() [Go to D]
   a. If yes to number 1, which one(s)? ____
   b. If yes to number 1, would you describe your agreement as a course-by-course model, a capstone model, or some other model?
   course-by-course() capstone () other () If other is checked, describe. ______________
   If yes to number 1, would you be willing to share a copy of these agreements?
   yes() no() [Go to 2]
   d. If no to number 1, is your institution presently working toward any agreements?
   yes() [Continue] no () [Go to 2]
   e. If yes to d, which ones? ____

2. a. Please describe any process that enables high school students to receive credit at a technical institute,two-year college, or university. ____________________
   b. Are these policies described in the current catalog/bulletin/handbook?
   yes() no() If yes, which pages? ____________________
   c. Are these any means or provisions for advanced placement or credit transfer to any other post-secondary institutions i.e. community/two-year or four-year colleges/universities? yes () no () If yes, describe. ____________________
   d. Are these policies described in the current catalog/bulletin/handbook? yes() no ()
   If yes, which pages? __________
3. What are the perceived advantages that could be derived from articulation agreements with four-year institutions? with technical institutes? with community colleges/two-year colleges?

   Four-year: ____

   Technical institutes: ____

   Community colleges: ____

4. What are the perceived disadvantages that could be derived from articulation agreements?

   ____

5. Are there any other added comments relating to articulation which could be helpful to starting a uniform articulation agreement in this state? yes() no() Comments__________

Appendix F

(RETYPED)
DELGADO COMMUNITY COLLEGE

2 + 2 TECH PREP PROGRAM

ARTICULATION COURSE WORK AND SCHOOL LOCATIONS

The student who receives a grade of "C" or better in an articulated course will be eligible for Delgado banked credit for the following courses which must be completed less than two years prior to Delgado registration. Delgado accepts the following:

JEFFERSON PARISH PUBLIC SCHOOL COURSES	SCHOOL SITES
Advanced Mathematics Algebra II Bookkeeping I, II Business Mathematics Chemistry English III, IV French I, II Physics Shorthand I Spanish I, II Speech I Speech II Typing I	ALL SENIOR HIGH SCHOOLS

(RETYPED)

ARTICULATED COURSES AND COMPETENCIES REQUIRED

HIGH SCHOOL COURSE	D.C.C. COURSE	COMPETENCIES REQUIRED
Advanced Mathematics	MATH 108 "Technical Math I" or MATH 110 "Technical Math II" or MATH 116 "Intermediate Algebra"	Contingent upon the student earning a final grade of C or better. Also, the student must take a proficiency test(s) in each course(s) for which credit is desired at D.C.C. and score at least 75% or better on each test.
Algebra II	MATH 108 "Technical Math I" or MATH 110 "Technical Math II" or MATH 116 "Intermediate Algebra"	Contingent upon the student earning a final grade of C or better. Also, the student must take a proficiency test(s) in each course(s) for which credit is desired at D.C.C. and score at least 75% or better on each test.
Bookkeeping I and II (both courses must be taken)	ACCTT III "Bookkeeping"	Contingent upon the student earning a final grade of C or better. Also, the student must take a proficiency test at D.C.C. and score at least a C (75%).
Business Mathematics	BUSG 121 "Business Mathematics"	Contingent upon the student earning a final grade of C or better. Also, the student must take a proficiency test at D.C.C. and score at least a C (75%).
Chemistry	CHEM 101 "Elementary Chemistry"	Contingent upon the student earning a final grade of C or better. Also, the student must take a proficiency test at D.C.C. and score at least a C (75%).
English III and IV (both courses must be taken)	ENGL 101 "English Composition"	Contingent upon the student earning a final grade of C or better. Also contingent upon the student making a score of 10 or above on the D.C.C. English Placement Test.

(RETYPED)

French I and II (both courses must be taken)	FREN 101 "Elementary French I"	Contingent upon the student earning a final grade of C or better. Also contingent upon the student passing a French Placement Test administered by D.C.C.
Physics	PHYS 101 "Elementary Physics I"	Contingent upon the student earning a final grade of C or better. Also, the student must take a proficiency test at D.C.C. and score at least a C (75%).
Shorthand I	SCOC 121 "Shorthand I"	Contingent upon the student earning a final grade of C of better. Also, the student must take a proficiency test at D.C.C. and score at least a C (75%).
Spanish I and II (both courses must be taken)	SPAN 101 "Elementary Spanish I"	Contingent upon the student earning a final grade of C or better. Also, contingent upon the student passing a Spanish Placement Test administered by D.C.C.
Speech I	SPCH 131 "Interpersonal Communication	Contingent upon the student earning a final grade of C or better. Also, the student must take a proficiency interview at D.C.C. and score at least a C (75%).
Speech II	THEA 101 "Theatre I"	Contingent upon the student earning a final grade of C or better. Also, the student must take a proficiency test at D.C.C. and score at least a C (75%).
Typing I	SCOC III "Introductory Typing"	Contingent upon the student earning a final grade of C or better. Also, the student must take a proficiency test.

Appendix G

(RETYPED)
DELGADO COMMUNITY COLLEGE
2 + 2 TECH PREP PROGRAM

ARTICULATION COURSE WORK AND SCHOOL LOCATIONS

The student who receives a grade of C or better in an articulated course will be eligible for Delgado banked credit for the following courses which must be completed less than two years prior to Delgado registration. Delgado accepts the following:

New Orleans Public School Courses	School Sites
Algebra II	All Senior High Schools
Commercial Art I	L. E. Rabouin Vocational High
Commercial Art II	L. E. Rabouin Vocational High
Commercial Art III	L. E. Rabouin Vocational High
Auto Mechanics I	George Washington Carver Senior High Booker T. Washington Senior High
Auto Mechanics II	George Washington Carver Senior High Booker T. Washington Senior High
Basic Electricity/Electronics	Sarah T. Reed Senior High
English III and IV	All Senior High Schools

(RETYPED)

Basic Technical Drafting I	Walter L. Cohen Senior High
	Warren Easton Fundamental High
	Alcee Fortier Senior High
	L. B. Landry Senior High
	McDonogh 35 Senior High
	Francis T. Nicholls Senior High
	O. Perry Walker Senior High
Technical Drawing I	Marion Abramson Senior High
Trigonometry	All Senior High Schools
Word Processing	John F. Kennedy Senior High
	McDonogh 35 Senior High
	Alfred Lawless Senior High
	Francis T. Nicholls Senior High
	Booker T. Washington Senior High

(RETYPED)

ARTICULATED COURSES AND COMPETENCIES REQUIRED

HIGH SCHOOL COURSE	D.C.C. COURSE	COMPETENCIES REQUIRED
Algebra II	MATH 116 "Intermediate Algebra"	Contingent upon the student earning a final grade of C or better. Also, the student must take a proficiency test at D.C.C. and score at least a C.
Commercial Art I	CMAR 103 "Introduction to Commercial Art"	Contingent upon the students earning a final grade of C or better. Also contingent upon a portfolio review of student work submitted to, and approved by, the Commercial Art Department at D.C.C.
Commercial Art II	CMAR 107 "Illustration I"	Contingent upon the student earning a final grade of C or better. Also contingent upon a portfoloio review of student work submitted to, and approved by, the Commercial Art Department at D.C.C.
Commercial Art III	CMAR 131 "Design I"	Contingent upon the student earning a final grade of C or better. Also contingent upon a portfolio review of student work submitted to, and approved by, the Commercial Art Department at D.C.C.

(RETYPED)

Auto Mechanics I and Auto Mechanics II (both courses must be taken)	MOVH 103 "Tools & Equipment" and MOVH 105 "Basic Engines" (Student will earn credit in both courses)	Contingent upon the student earning a final grade of C or better in both courses from high school teacher
Basic Electricity/ Electronics	ELST 100 "Fundamentals of Electricity"	Contingent upon the student earning a final grade of C or better from the high School teacher
English III and IV (both courses must be taken)	ENGL 101 "English Composition I"	Contingent upon the student earning a final grade of C or better. Also contingent upon the student making a score of 10 or above on the D.C.C. English Placement Test

Appendix H

(RETYPED)
ARTICULATED COURSES AND COMPETENCIES REQUIRED

HIGH SCHOOL COURSE	D.C.C. COURSE	COMPETENCIES REQUIRED
Advanced Mathematics	MATH 108 "Technical Math I" or MATH 110 "Technical Math II" or MATH 116 "Intermediate Algebra"	Contingent upon the student earning a final grade of "C" or better. Also, the student must take a proficiency test(s) in each course(s) for which credit is desired at DCC and score at least 75% or better on each test.
Algebra II	MATH 108 "Technical Math 1" or MATH 110 "Technical Math II" or MATH 116 "Intermediate Algebra"	Contingent upon the student earning a final grade of "C" or better. Also, the student must take a proficiency test(s) in each course(s) for which credit is desired at DCC and score at least 75% or better on each test.
American History	HIST 205 "American History to 1865"	Contingent upon the students earning a final grade of "C" or better. Also, the student must take a proficiency test at DCC and score at least a "C".
Business Math	BUSG 121 "Business Mathematics"	Contingent upon the student earning a final grade of "C" or better. Also, the student must take a proficiency test at DCC and score at least a "C".
Accounting I	ACCT 111 "Bookkeeping"	Contingent upon the student earning a final grade of "C" or better. Also, the student must take a proficiency test at DCC and score at least a "C".

(RETYPED)

Clerical Office Practice	SCOC 178 "General Office Procedures"	Contingent upon the student earning a final grade of "C" or better. Also, the student must take a proficiency test at DCC and score at least a "C".
Computer Literacy	CMIN 201 "Computer Based Systems"	Contingent upon the student earning a final grade of "B" or better. Also, the student must take a proficiency test at DCC and score at least a "C".
Typewriting I	SCOC 111 "Introductory Typing"	Contingent upon the student earning a final grade of "C" or better. Also, the student must take a proficiency test at DCC and be able to type 40wpm.
Typewriting II	SCOC 112 "Intermediate Typing"	Contingent upon the student earning a final grade of "C" or better. Also, the student must take a proficiency test at DCC and be able to type 60wpm.
Chemistry I	CHEM 101 "Elementary Chemistry"	Contingent upon the student earning a final grade of "C" or better. Also, the student must take a proficiency test at DCC and score at least 75% or better.

(RETYPED)

Physics	PHYS 101	Contingent upon the student earning a final grade of "C" or better. Also, the student must take a proficiency test at DCC and score at least 75% or better.
English III and IV (Both courses must be taken)	ENGL 101 "English Composition 1"	Contingent upon the student earning a final grade of "C" or better in both courses. Also, contingent upon the student making a score of 10 or above on the DCC English 101 exit exam.
Electronics (Basic Core)	ELST 103 "Electrical Principles"	Contingent upon the student earning a final grade of "C" or better. Also, the student must pass a proficiency test with a grade of 80%.
Electrician	ELCO 100 "Fundamentals of Electricity"	Contingent upon the student earning a final grade of "C" or better. Also, the student must pass a proficiency test with a grade of 80%.

Appendix I

ABC Parish School Board
LMN Area Technical Institute
XYZ University
TECH-PREP CONSORTIUM

I. Purpose of the Consortium.

The purpose of this consortium agreement is to allow the ABC Parish School Board, the LMN Area Technical Institute, and the XYZ University to develop a Carl D. Perkins Vocational and Applied Technology Tech-Prep Curriculum.

II. Function of the Consortium.

The major function of this Consortium is to develop a curriculum that adequately prepares individuals for skilled jobs upon graduation of an approved vocational certificate program or related associate degree. This process will enable students to minimize technical-topic redundancy as they matriculate from institution to institution. This consortium will study and examine existing vestiges of like programs, determine the attributes and manifestations apropos to this community. Appropriate inservice training for counselors and faculty will be determined by the consortium. Assessments of both student needs as well as necessary equipment to ensure success of the program are also functions of the consortium.

III. Termination of the Consortium Agreement.

This Consortium Agreement shall terminate for any or all of the following reasons:

a. Failure of the consortium to be awarded a Carl D. Perkins Vocational and Applied Technology grant.
b. Upon written notice of an Authorized Agent for Parish School Board, the LMN Area Technical Institute, or the XYZ University.
c. At the end of the 1995-1996 academic year.

IV. Fiscal Agent. The ____________________ will serve as the fiscal agent for the consortium.

We the undersigned representative of the listed institution, agree to the terms of this Consortium Agreement beginning on the date affixed to this document.

______________________________ ________________
Authorized Agent for Date
ABC Parish School Board

______________________________ ________________
Authorized Agent for Date
LMN Area Technical Institute

______________________________ ________________
Authorized Agent for Date
XYZ University

Appendix J
SAMPLE ARTICULATION AGREEMENT
HIGH SCHOOL TO TWO YEAR COLLEGE

As a result of the work undertaken since August, 19XX, approved in 19XX and updated in 19XX, 19XX, 19XX, and 19XX, the faculty and administration of ABC and the vocational faculty and the administration of XYZ Parish Schools enter into an Articulation Agreement to provide advanced placement for high school graduates who complete Vocational courses at XYZ.

Courses in which advanced placement shall be accepted are as follows: (This agreement shall be updated annually.)

XYZ High School	ABC College
Introduction to Data Processing	EDP 110 Computer Literacy
Drafting I, II and III	DFT 101 Technical Drafting
Accounting I and Computerized Accounting	BUS 120 Accounting I
Office Occupations	BUS 110 Office Machines
Computerized Typing	BUS 102 Computerized Typewriting I
Business Law	BUS 115 Business Law I
Principles of Technology I & II	PHY 1101 Applied Science & PHY 1102

The procedure for advanced placement of students shall be as follows:

1. Student has completed the XYZ course of study with a grade of "B" or better and requests advanced placement.

2. Student is recommended for advanced placement by the XYZ instructor or instructors.

3. Where required by the ABC faculty, student shall pass a proficiency test.

4. The ABC instructor recommends advanced placement for the specific course and forwards all documentation to the registrar.

5. The ABC registrar shall post the advanced placement on the transcript showing advanced placement from XYZ. An "AP" will be listed in the grade column.

6. The transcript will show credit toward graduation but will not carry a formal grade or grade points. The hours will not be used in calculating the point average.

____________________ President	______________Superintendent
ABC College	XYZ Parish School System
____________________ Date	________________ Date

ARTICULATION AGREEMENT

(RETYPED) (RETYPED)

Between

MCNEESE STATE UNIVERSITY

and

SOWELA TECHNICAL INSTITUTE

IN ORDER to more adequately meet the educational needs of the post-secondary students, MCNEESE STATE UNIVERSITY and SOWELA TECHNICAL INSTITUTE do hereby adopt the following articulation plan for Sowela Technical Institute students wishing to transfer to McNeese State University in order to complete their studies.

1 - Any student (or former student) of Sowela Technical Institute who is a high school graduate or who has successfully completed the McNeese State University entrance examination is eligible to enroll at McNeese State University while still enrolled at Sowela Technical Institute.

2 - The student will pay the registration fees in effect at McNeese State University at the time the student registers at McNeese State University.

3 - Course description will be provided to McNeese State University by Sowela Technical Institute for use in evaluating the educational backgrounds of the Sowela Technical students.

4 - The Sowela Technical Institute student who wishes to enroll at McNeese State University will present his [/her] Sowela Technical Institute transcript to his [/her] department head at McNeese State University. The student's department head will evaluate the transcript and advise the student of the McNeese courses in which he [/she] may take proficiency exams and will determine the number of semester hours the student will be required to take at McNeese State University in order to receive an associate degree.

5 - Proficiency examinations will be administered by the appropriate departmental representative at McNeese State University and will be graded on a pass-fail basis. Grades earned on these exams will not be computed in determining the student's grade-point average.

6 - Credit validated by proficiency examinations will be placed on the student's McNeese State University transcript when he [/she] has been admitted to the University and has successfully completed one semester.

7 - Following these examinations, the transfer student from Sowela Technical Institute will be assigned a McNeese faculty advisor who will help the student determine which courses at McNeese State University he should take in order to further his [/her] academic goals.

8 - A maximum of forty-five (45) semester hours may be earned through proficiency examinations for courses taken at Sowela Technical Institute, for extension courses, correspondence courses, advanced placement credit, CLEP examination credit, and certain USAF1 correspondence courses.

9 - If the demand exists, early classes may be offered by the University at Sowela Technical Institute.

10 - In order for a student to graduate with an associate degree from McNeese State University, he [/she] must meet all requirements listed in the current McNeese State University General Catalog. Of particular interest to Sowela Technical Institute students will be the following requirements: a) Be enrolled at McNeese State University a minimum of thirty-six (36) weeks or the equivalent; b) Earn a minimum of eighteen (18) semester hours credit from McNeese State University; c) Earn from McNeese State University at least twelve (12) of the last fifteen (15) semester hours offered in fulfillment of the degree requirements.

THIS AGREEMENT IS APPROVED ON: ____________________

MCNEESE STATE UNIVERSITY: ____________________

SOWELA TECHNICAL INSTITUTE: ____________________

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